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ANNUAL REPORT

OF THE

CANAL COMMISSIONERS

OF THE

STATE OF NEW YORK.

TRANSMITTED TO THE LEGISLATURE JANUARY 1, 1867.

ALBANY:
C. VAN BENTHUYSEN & SONS, PRINTERS.
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No. 7.

IN ASSEMBLY,

January 1, 1867.

ANNUAL REPORT
OF THE CANAL COMMISSIONERS.

STATE OF NEW YORK:
CANAL COMMISSIONERS' OFFICE,
ALBANY, *January* 1, 1867.

To the Honorable the Legislature of the State of New York:

The undersigned herewith transmit their respective reports as Canal Commissioners, for the year ending the 30th day of September, 1866.

Very respectfully,
B. F. BRUCE,
F. A. ALBERGER,
R. C. DORN,
Canal Commissioners.

28 Stone Locks cost each	$ 10,000
73 Composite do.	" 8,000
11 Wood do.	" 5000
Total Number & Size of Locks	112 Lcks 90 + 15 ft
Cost Transport^n pr. ton pr. mile exclusive tolls	1½ cent
Annual cost of repairs per mile	$ 380

LOCKS

No	Lift	No	Lift	No	Lift	No	Lift	No	Lift
1	14.6	24	9	47	10	70	7.9	93	8
2	6	25	10	48	10	71	11	94	8
3	10	26	10	49	10	72	8	95	9
4	10	27	11	50	12	73	8	96	10
5	10	28	8	51	12	74	9	97	10
6	7	29	12	52	12	75	9	98	11
7	6.1¾	30	10	53	12	76	10	99	11
8	7	31	10	54	12	77	10	100	10
9	11.6	32	10	55	12	78	10	101	8.9
10	11.6	33	10	56	12	79	10	102	8
11	11	34	10	57	12	80	8	103	9
12	10	35	10	58	12	81	10	104	9
13	11	36	10	59	12	82	11	105	9
14	11	37	8	60	12	83	11	106	11
15	11	38	10	61	8	84	11		
16	11	39	11	62	12	85	11		
17	11	40	11	63	6	86	11	Dansv. Branch	
18	10	41	11	64	12	87	11	1	
19	8	42	10.9	65	9	88	11	2	
20	11	43	10	66	9	89	11	3	
21	10	44	10.6	67	9	90	11	4	
22	10	45	9	68	10	91	8	5	
[illegible]	11	46	10	69	10	92	8	6	
								7	
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REPORT.

STATE OF NEW YORK:
CANAL COMMISSIONERS' OFFICE,
ALBANY, *October* 1, 1866.

To the Honorable the Legislature of the State of New York:

Pursuant to the provisions contained in the Revised Statutes the Canal Commissioners submit their

ANNUAL REPORT.

At the beginning of the present year, the Board of Canal Commissioners consisted of W. I. Skinner, president, whose term of office expired on the 31st day of December, 1865; B. F. Bruce, secretary, whose term of office will expire on the 31st day of December, 1866, and F. A. Alberger, whose term of office will expire on the 31st day of December, 1867.

On the 1st day of last January the Board consisted of B. F. Bruce, F. A. Alberger and R. C. Dorn. It was reorganized by the election of B. F. Bruce, president, and R. C. Dorn, secretary.

To R. C. Dorn was assigned, in special charge, the Eastern division of the canals, which is made up as follows:

	Miles.
Erie canal, from Albany to the east bank of the Oneida Lake canal	136
Champlain canal	66
Glens Falls feeder	12
Pond above Troy dam	3
Black River canal and Black River improvement	98

To B. F. Bruce was assigned, in special charge, the Middle division of the canals, which embraces the following:

	Miles.
Erie canal, from the east bank of the Oneida Lake canal to the county line between Seneca and Wayne counties, including the several feeders and reservoirs	76

	Miles.
Chenango canal, feeders and reservoirs	97
Chenango canal extension, now under contract for construction	30
Oswego canal	38
Oneida Lake canal	7
Oneida River improvement	20
Seneca River towing path	5¾
Cayuga and Seneca canal	23
Cayuga inlet	2
Crooked Lake canal	8
Chemung canal	23
Chemung canal feeder	16
Seneca River improvement	12¼

To F. A. Alberger was assigned, in special charge, the Western division of the canals, which embraces the following:

	Miles.
Erie canal, from the county line between Seneca and Wayne counties, to Buffalo, including the Main and Hamburg street canal, slip and basin at the latter place	155
Genesee Valley canal	118
Extension of Genesee Valley canal	7

EASTERN DIVISION.

CANAL REPAIRS.

ERIE CANAL.

The Eastern division of the Erie canal, commencing at the south end of the Albany basin, extends to the east bank of the Oneida Lake canal at Higginsville, and includes that part of the Champlain canal beginning at its junction with the Erie canal at the foot of the guard lock at Mohawk river, also all feeders, dams, side-cuts and structures connected therewith. It is divided into five superintendent or repair sections, three of which were in charge of Robert C. Dorn, as superintendent, until the thirteenth day of December, 1865, and subsequent to that date have been under the direction of Harman Van Slyck, who was appointed on the fourteenth day of December last to fill the vacancy occasioned by the resignation of Mr. Dorn. The remaining sections, two in number, have been in charge of George Heath, as superintendent of repairs.

SECTION NO. 1

Extends from the south end of the Albany basin to the west end of the lower Mohawk aqueduct, and includes the Port Schuyler and West Troy side-cuts, the Champlain canal from the junction to the Mohawk river, the Troy dam, sloop lock, and the pond above, making a total length of nineteen miles.

The structures upon this section are :

Forty-six locks, including two weigh locks ; one hundred and eighty-two lock gates ; twenty culverts; ten road bridges (wood); eleven road bridges (iron); eleven farm bridges (wood); two towing path bridges (wood) ; one aqueduct ; six waste weirs ; one work shop, and two timber sheds.

On the 29th day of February, 1864, the repairs of the section were let to Spencer Jackson, to take effect on the succeeding 4th of March, and to continue to the first day of January, 1867, at the rate of $39,900 per annum.

Pursuant to chapter 252 of the Laws of 1864, his compensation was increased to $68,628 per annum.

Work performed.—The bottoms of locks seven, fourteen and seventeen have been concreted and replanked. The structures having been built prior to 1842, and the spaces between the timbers composing the bottoms filled in with stone and gravel instead of concrete, as now adopted, the water forced itself through the flooring, to the imminent danger of the lock, and proved detrimental to the interests of navigation. This important work was performed and charged to the extraordinary repair fund, in accordance with a resolution of the Canal Board. The work, which was commenced on the bottom of lock number one in the spring of 1865, and abandoned in consequence of high water and the near approach of the time of opening the State canals, was resumed and completed during last winter. The large expenditure on this lock was occasioned by the construction of a coffer dam in the river, and the difficulty experienced in maintaining the same against the heavy pressure of water continually bearing against it, and includes an item of thirty dollars which was chargeable to the repair contractor. The bottom of lock four was also concreted and replanked under the supervision of the Engineer department, and is mentioned elsewhere.

The masonry of the piers of the lower Mohawk aqueduct was found to be in a precarious condition, and involved a large amount of extra work in taking it down to the bottom of the trunk, and relaying and bolting it together with dowel bolts. This was rendered necessary in consequence of the braces, which sustain the side of the trunk in the center, and which were toed into the masonry, having forced the stone work above the bottom of the trunk, thus materially endangering the structure. Many of the braces had to be removed and new ones inserted. In making the repairs upon this structure, work to the amount of seven hundred and fifty dollars was charged to the repair contractor, and the same deducted from his monthly draft, for compensation. All other repairs upon the section have been performed by the contractor in charge, and successful navigation maintained, especially through the sixteen locks where formerly great detentions occurred.

Work to be performed.—The sixteen locks will require very general repairs during the ensuing suspension of navigation, and a number of new lock gates and mitre sills will have to be inserted. One-half of the trunk of the lower Mohawk aqueduct should be rebuilt, and the piers of the structure will require extensive repairs, as the work performed last spring was less general than it would have been had sufficient time elapsed for more thorough repairs. This was owing to the piers being in a much more dangerous condition, and requiring more work than was anticipated.

Some portions of the Troy dam will require graveling, and other needful repairs will have to be performed, which, with the usual amount of spring repairs to the bridges, locks and other structures, will place the section in navigable order. The remaining locks, five, fifteen, sixteen and eighteen, that were built in the early part of the enlargement, have not since been improved, and should be concreted and replanked, in conformity with the others already repaired.

The sluice around the guard lock at Cohoes is not of sufficient capacity to pass the requisite amount of water for the maintenance of successful navigation, and ought to be enlarged.

At the Port Schuyler side-cut the slope wall projecting into the canal should be replaced by a vertical one. This would relieve the many hindrances to navigation that so frequently occur at this point, by the grounding of boats on the old wall, and the difficulty experienced by those of a large class forming jams or crowds in passing each other, as is now very often the case. Such an improvement would obviate the evil complained of.

During the year no breaches have occurred on this section, and navigation has been unusually good, owing in a great measure to the removal of the old bench and slope wall, and its replacement by a vertical one, thus affording additional facilities for the numerous boats that of necessity accumulate on the West Troy level, in their passage to and from the river through the side-cuts located at this point.

Detailed Statement of Expenditures by R. C. Dorn, late Superintendent on Section No. 1, *from Oct.* 1*st to Dec.* 13*th,* 1865.

Assisting navigation at West Troy and Sixteen Locks,	$608 00
One-third supt. salary and clerk hire	107 53
	$715 52

Detailed Statement of Expenditures by Harman Van Slyck, Superintendent on Section No. 1, *for the balance of fiscal year ending Sept.* 30*th*, 1866.

Lower Mohawk aqueduct, repairs to the masonry of piers, including $750 charged to the repair contractor	5150.64 ~~170 05~~
Assisting navigation during crowds	170 00
One-third supt. salary and clerk hire	425 79
Total	$5,746 43

Extraordinary Repairs.

Concreting and replanking bottoms of locks 1, 7, 14 and 17	$12,478 30

SECTION NO. 2

Extends from the west end of the lower Mohawk aqueduct to the head of lock No. 27, and is thirty-two miles in length.

The structures on this section are:

Eighteen locks; one guard lock; one workshop and timber shed; one dam; nineteen culverts; six lock houses; twenty road bridges (wood); three road bridges (iron); three aqueducts; two waste weirs; sixteen farm bridges; two towing path bridges.

The repairs of this section have been awarded to Charles A. Donaldson for the term of three and one-quarter years, commencing the first day of October, 1865, and expiring on the first day of January, 1869, at an annual compensation of $17,740.

Work performed.—The new superstructure for the bridges at John Kline's and Freeman's, which were commenced prior to the letting of the section, have since been finished at an expenditure assumed by the State.

The timber and plank vertical docking on both berme and towing path embankments, for a distance of two and one-half miles west of the city of Schenectady, was in a dilapidated condition, and during past seasons required a large amount of repairs to prevent its falling over into the canal; the high embankment, and the alluvial nature of the materials of which it is composed, rendering it very unsafe. The printed notice of the letting directed special attention to this work, reserved its reconstruction from the repair contract, and also contained a like provision for the rebuilding of the trunk of the upper Mohawk aqueduct. The timber and necessary materials for the new docking were procured and delivered before the suspension of navigation last fall, and the work was at once commenced. Laborers and mechanics were employed during the winter in framing the timber and removing the old docking, preparatory to the putting in of the new, and in the early part of the spring the force was increased and the work progressed with all possible vigor. About one mile on the towing path side still remains unimproved. This will be rebuilt before the opening next season.

The trunk of the upper Mohawk aqueduct was also rebuilt in a very substantial manner. The berme side was braced by extending the needle beams about ten feet outside of the trunk, supporting them by a vertical truss attached to the masonry in the pier, and inserting braces from the needle beams to posts fastened to the side of the trunk.

Extraordinary repairs.—In pursuance of a resolution of the Canal Board, the bottoms of locks twenty, twenty-two, twenty-three and twenty-six were concreted and replanked, and their working greatly facilitated thereby.

Work to be performed.—Upon this section the structures generally will require more or less repairs. Many of the locks will need new gates and mitre sills, and others will have to be thoroughly repaired. The bridge known as Mercellus' should be rebuilt; and the box culverts at Flint Hill and on the feeder level, being constructed of wood, should be replaced by stone structures, which alone are reliable and permanent. The towing path, which in many places is much worn by continued use, will have to be graveled and the surface raised and graded to its original height.

The old feeder dam at Rexford Flats was entirely swept away by the action of the ice and current of the river, and its loss has been partially supplied by the new stone dam recently completed. The Schoharie creek feeder has been largely drawn upon to supply the deficiency, and several times during the dry season serious fears were entertained that an entire suspension of navigation would be the irremediable result of the delay experienced in prosecuting the work to a successful completion.

Breaches.—On the morning of June 15th a very serious breach occurred on the four mile level, near Thomas'. This disaster was undoubtedly caused by the prism of the canal at this point being formed of materials which were not impervious to water. The high towing path embankment, sloping to the surface of the river, was swept away for a distance of four hundred feet and to the depth of twenty-five feet below the original bottom of the canal, the violent action of the water wearing away the prism for a distance of one hundred feet on each side of the towing path openings. It was universally conceded to have been the largest breach that ever occurred on the Eastern division, and from its magnitude to have been repaired in an unusually short interval. The whole was completed after a delay of nine days, navigation being again resumed on the 24th instant.

The work was performed by the repair contractor in charge, and the cost arrived at by inspectors appointed by the State, who kept an accurate record of the men and teams employed and materials used, so that just and equitable settlement was made, in pursuance with the terms of the contract now on file in this department, which provide that the State shall pay all expenses of repairing a breach beyond the stipulated amount of $5,000. The aggregate cost of the breach was $18,939, and the Commissioners' draft for $13,939 was given the contractor in payment of the above-mentioned repairs.

Detailed Statement of Expenditures on Section No. 2, *by R. C. Dorn, late Superintendent, from October* 1*st to December* 13*th*, 1865.

	New structures.	Repairs.	Total.
Lock tending, as per provisions of repair contract..	....	$1,625 76	$1,625 76
Bridges (not completed at the time of letting).....	$1,214 13	95 67	1,309 80
Lock gates do do do	249 20	....	249 20
Rebuilding trunk of Upper Mohawk aqueduct.....	*22,417 06	....	22,417 06
Rebuilding vertical docking on Schenectady level..	*27,907 40	....	27,907 40
Repairs of towing path (prior to letting)..........	....	29 25	29 25
Cleaning out bottom do	....	12 00	12 00
Cleaning out creeks do	....	116 00	116 00
Miscellaneous..................................	....	219 39	219 39
One third superintendent's salary and clerk hire...	....	107 52	107 52
Totals..................................	$51,787 97	$2,205 59	$53,993 38

Detailed Statement of Expenditures by Harman Van Slyck, Superintendent, on Section No. 2, *for the balance of the fiscal year ending September* 30*th*, 1866.

	New structures.	Repairs.	Total.
Lock tending, as per provisions of repair contract..	....	$2,268 75	$2,268 45
Rebuilding trunk of Upper Mohawk aqueduct*....	$13,316 01	....	13,316 01
Rebuilding docking on Schenectady level*.........	19,213 27	....	19,213 27

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* Reserved from repair contract.

	New structures.	Repairs.	Total.
Rent of lock house prior to October 1st	....	$25 00	$25 00
Miscellaneous	....	165 22	165 22
One-third superintendent's salary and clerk hire	....	425 80	425 80
Totals	$32,529 28	$2,884 77	$35,414 05

Extraordinary Repairs.

Concreting and replanking bottoms of locks 20, 22, 23 and 26	$7,408 77

SECTION No. 3

Extends from the head of lock No. 27 to the foot of lock No. 34, and is thirty-seven miles in length.

The structures embraced on this section are:

Fourteen lift locks; three guard locks; ten aqueducts; twenty-nine culverts; five waste weirs; thirty-one farm bridges; eighteen road bridges (wood); six road bridges (iron); one wire suspension foot bridge at Fort Plain; two dams; two work shops, and three lock houses.

The repairs of the section were placed under contract to Van Slyck & Neff, commencing on the first day of October, 1864, and continuing to the first day of January, 1868, at the rate of $16,780.00 per annum.

The contract has been assigned to Daniel Neff, and the section is under his immediate charge.

Work performed.—The bottom of Rocky Rift feeder became filled in by the *débris* and alluvial deposit occasioned by the spring freshets, and the capacity of the channel was consequently so much diminished that the requisite quantity of water for canal purposes could not be obtained. In accordance with a resolution of the Canal Board the deposit was removed and the material used for strengthening and otherwise repairing the banks, to prevent the overflow from sudden risings of the adjacent river. This materially improved and increased the flow of water through the feeder, and relieved in a measure the constant and very careful attention which, from the inadequacy of the feeders upon the Eastern division, is necessary to provide the requisite supply of water, prevent waste and avoid the possibility of a suspension of navigation.

The State dredge purchased some years ago was in a worn out condition at the close of the last season, and was of no practical use or value. It has since been rebuilt, and with the partial improvements added, is now in prime working order; the machine is maintained for general use on the entire division, and the expenses are charged to the sections that require its use.

The towing path bank on the Port Jackson level, being subject to slides, from its quicksand formation, has been strengthened and rendered secure by piling. The roadway under the Schoharie creek aqueduct, which was partially closed at the time of the construction of the new dam, has been reopened and otherwise repaired.

Work to be performed.—The current of water passing over the Schoharie creek feeder dam, and the consequent wear upon the structure, have rendered it essential that a new apron should be constructed for its protection. The narrowness of the channel in the feeder, prevents the passage of the requisite quantity of water to meet the requirements of the canal or fully test the capacity of the dam. This should be enlarged prior to the opening for another season, as it would prove of material benefit to the State and those interested in the success of our canal system. New superstructures will be required in place of the bridges at Spraker's and Van Alstyne's, both of which are in an unsafe condition, and liable to fall if heavily loaded.

In many places the towing path will need graveling, and the usual amount of spring repairs will be required.

Navigation has been uninterrupted for the season, with the exception of a detention of twelve hours occasioned by the giving away of a portion of the towing path embankment between locks twenty-nine and thirty; its prompt discovery by the contractor prevented a longer suspension of navigation.

Detailed Statement of Expenditures by R. C. Dorn, late Superintendent, on Sec. No. 3, from Oct. 1 to Dec. 13, 1865.

	New structures.	Repairs.	Total.
Lock tending, as per provisions of repair contract		$1,082 55	$1,082 55
Repairs of roadway under Schoharie creek aqueduct		56 25	56 25
Dredging out bottom of Rocky Rift feeder		428 03	428 03
Protecting sliding bank on Port Jackson level		1,447 95	1,447 95
Repairs of aqueducts prior to letting of 1864		464 59	464 59
Lock house No. 30, (completion of)	$24 75		24 75
Repairs of breach in 1864		12 75	12 75
Rebuilding State dredge	154 65		154 65
Miscellaneous		38 79	38 79
One-third supt. salary and clerk hire		107 53	107 53
Totals	$179 40	$3,638 44	$3,817 84

Extraordinary Repairs.

Concreting bottom of lock 32, in spring of 1865	$40 20

Detailed Statement of Expenditures by Harman Van Slyck, Superintendent, on Section No. 3, for the balance of fiscal year, ending September 30, 1866.

	New structures.	Repairs.	Total.
Lock tending, as per provisions of repair contract	....	$1,554 00	$1,554 00
Rebuilding State dredge	$5,971 01	....	5,971 01
One-third supt. salary and clerk hire	....	425 80	425 80
Totals	$5,972 01	$1,979 80	$7,950 81

Extraordinary Repairs.

Improvement Rocky Rift feeder	$1,339 42

SECTION No. 4.

Extends from the foot of lock No. 34 to the head of lock No. 45, and is twenty-one miles in length.

The following are the structures upon this section:

Twenty-four locks; one guard lock; one hundred and ninety-six lock gates; four aqueducts; seven waste weirs; ten culverts; twenty-four farm bridges (wood); eleven road bridges (wood); two road bridges (iron); one tow path bridge (wood); one draw bridge (wood); one swing bridge (wood); one dam; one feeder, with bulkhead; two feeders with guard locks; eight lock houses; two work shops; twelve watch houses; one collector's office.

The contract for the repairs of this section was let to Samuel F. Case from the first day of October, 1864, to the first day of January, 1868, at the rate of $22,900 per annum.

Work performed.—Four new lock gates and three new aqueduct gates; twelve toe posts and twenty-seven new lock gate valves have been inserted; the waste weirs above locks thirty-nine and forty-one have been rebuilt, (including a new bridge over the latter structure,) and the section generally has received all needful repairs by the contractor in charge.

In the month of November last, the embankment of Ilion creek was discovered to be rapidly wearing away by the current in its passage to the river; it was deemed necessary to protect the same by a wall and also to rebuild a portion of the embankment. In the month of December, temporary dams were constructed in the aqueduct at Little Falls, for its protection against high water; these were removed again this spring. The draw bridge over the Little Falls basin has been repainted, and the towing path raised and graveled on a portion of the five mile level, as well as at other points on the section.

Work to be performed.—The bridges at Mindenville, at Canal street in the village of Mohawk, at McGowan's, Frankfort, and one at Ilion should be rebuilt the ensuing winter. The culvert east of lock forty-four should be extended twenty-five feet on the towing path side, in order to afford an additional slope for the protection of the embankment. The Jacksonburgh waste weir, having been undermined, has been of no service since the season of 1863. It should be rebuilt, its loss being detrimental to the interests of the canal.

On the towing path side, below lock forty-five, the vertical wall has long been in a dangerous condition, in consequence of its quicksand foundation, and its proximity to the Bridenbecker raceway, and has materially interrupted navigation, I would recommend building at this point a substantial concrete wall, with either a timber or a concreted foundation. The protection bank of the Little Falls aqueduct, and the towing path for a distance of one and one-half miles east of lock forty-two, though now at its original height, should be raised two feet to guard against the overflow from the river, and the bottom easterly of the lock should be dredged out to a depth below its original prism, it being composed of quicksand and loam, which frequently form bars, to the great detriment of passing boats.

The vertical docking, at the head of lock thirty-four, projects into the canal, and should be rebuilt, so as to give an additional width at this point. The towing path will require more or less graveling, and the locks and other structures the usual spring repairs.

Sunken boats.—Only one boat has been sunk on this section. It was occasioned by the breach on the five mile level, and caused a detention of six hours.

Breaches.—On the morning of July 21st, the structure known as the "Kretzinger Dive Arch culvert," was discovered to be undermined, but too late to prevent its going out, the breach thereby occasioned being about seventy feet in width. Upon consultation it was estimated, that to repair the foundation, and replace the culvert, would occasion a detention of fifteen days at least, but that an embankment could be constructed, below and around the opening of the culvert, in much less time, and thus save to the revenue of the State a large amount of tolls. The latter plan was adopted, and in repairing the same temporarily, the culvert was closed at both ends, and the water from the stream allowed to flow back on the berme side, and over the adjoining land. It has not yet been determined whether to repair the culvert, or to complete the towing path bank; the latter would permanently close the structure, and the land be again overflowed. The repairs were performed by the contractor at an expenditure of $3,265.50, navigation being resumed on the fourth day after the failure occurred.

A portion of the vertical wall at the foot of lock forty-five fell in on the 21st day of August, and the balance on the 2d day of September, causing a detention of twenty hours for both repairs.

Detailed Statement of Expenditures by Geo. Heath, Superintendent on Section No. 4, for the fiscal year ending September 30th 1866.

	New struct's.	Repairs.	Total.
Lock tending, as per provisions of repair contract..	....	$5,480 64	$5,480 64
Protection to bank of Ilion creek..................	$1,071 74	....	1,071 74
Watching canal	....	300 00	300 00
Tools	118 23	....	118 23
Repairing tools..............................	....	44 67	44 67
Constructing dams in Little Falls aqueduct	69 87	....	69 87
Regulating water..............................	....	36 00	36 00
Old accounts of former superintendent	....	77 25	77 25
Painting Little Falls feeder bridge................	....	35 00	35 00
Concreting bottom of lock 44, (old account)	....	2 60	2 60
Testing capacity of new dredge..................	....	52 50	52 50
Miscellaneous expenditure	....	144 81	144 81
One half of superintendent's salary and clerk hire..	....	766 66	766 66
Total....................................	$1,259 84	$6,940 13	$8,199 97

SECTION No. 5

Extends from the head of lock No. 45 to the east bank of the Oneida Lake canal, at Higginsville, a distance of thirty-four miles.

The structures upon this section are as follows:

Two locks; eight lock gates; one weigh lock; four aqueducts;

twenty-nine culverts; four waste weirs; twenty-three farm bridges (wood); six farm bridges (iron); eighteen road bridges (wood); eighteen road bridges (iron); one towing path bridge; two foot bridges (wood); one foot bridge (iron); two lock houses; two work shops; one watch house; five storehouses; two timber sheds; two dams; one collector's office, Utica.

The contract for the repairs of this section was let to E. H. French, from the first day of October, 1864, to the first day of January, 1868, at the rate of $12,000 per annum.

Work performed.—The iron bridge across Seneca street, in the city of Utica, and the iron chord structure, known as Hulser's bridge, having been knocked down by passing boats, were both rebuilt. Many of the other bridges have received repairs, and in some instances replanking. The weigh lock at Utica was extensively improved during the spring, a new scale beam and cradle having been inserted; the iron work enlarged and strengthened; the old cast steel bearing dies, that were deficient, replaced by new; the scales readjusted and the building renovated and repainted.

The embankment near Newville bridge has been protected, and the Hotel street bridge, Utica, raised to avoid injury by passing boats.

In pursuance of a resolution of the Canal Board, the bottom of the berme bank of the canal, between Clay street bridge and the Big basin, Utica, has been dredged out so as to conform to the required width of prism. The proposed vertical wall at Clay street bridge will be constructed this winter, a portion of the stone having already been delivered for that purpose.

At different localities on the section the towing path has been repaired and graveled, and some improvements as extraordinary repairs have been made under the supervision of the Engineer department, of which mention is made elsewhere.

Work to be performed.—The prism of the canal above James street bridge, in the village of Rome, and at the intersection of the feeder with the main canal, also at the Yorkville factory dock, and in the vicinity of structure number two hundred and thirty-two, should be bottomed out before another season, in order to remove the obstructions that during the past year have somewhat impeded navigation at those points. The bottom of the canal between Broad street bridge and the weigh lock, Utica, and that adjacent to the berme bank along the base of the vertical wall, is not of the required depth, and has seriously prevented loaded boats from mooring at the dock for the discharge or reception of cargoes. This ought to be remedied, and increased facilities afforded for the commercial interests of the city. A vertical wall between Clay street bridge and Big basin is also required.

The bridges at Willow street, Whitesboro, and Teft's, will have to be rebuilt. The Genesee street bridge, at Utica, is too low, and is in imminent danger of injury. It should be raised thirteen inches, or be replaced by a wrought iron superstructure that would give ample room for the passage of boats, and obviate the necessity of raising the approaches, which are now built on heavy grades that could not well be increased without proving detrimental to the interests of the city, and I am in hopes that some other provision may be adopted for their improvement and safety.

Two new lock gates and a new mitre sill will have to be inserted in the weigh lock ; the bulkhead of the Rome feeder needs repairing, and about twenty rods of sunken towing path, above structure two hundred and twenty-nine, should be raised.

Sunken boats.—During the past season five boats have been sunk upon this section, none of which caused any detention to navigation. It resulted from the carelessness of the boatmen or the unworthiness of the respective crafts.

Detailed Statement of Expenditures by George Heath, Superintendent on Section No. 5, for the fiscal year ending Sept. 30, 1866.

REPAIRS.

	New.	Repairs.	Total.
Lock tending, as per provisions of repair contract	....	$452 00	$452 00
Repairs of Utica weigh lock	....	4,095 70	4,095 70
Building protection bank at Newville bridge	$137 38	....	137 38
Transporting slope wall stone from Rome to Utica	263 12	....	263 12
Tools	26 63	....	26 63
Collecting and repairing tools	....	38 37	38 37
Watching canal	....	30 00	30 00
Raising Hotel street bridge, Utica	....	50 00	50 00
Miscellaneous expenditure	....	121 75	121 75
One half of Superintendent's salary and clerk hire	....	766 66	766 66
	$427 13	$5,554 48	$5,981 61

Extraordinary Repairs.

Excavating bottom between Clay street bridge and Big basin, Utica	$798 93

The following are the amounts expended on the Eastern Division of the Erie canal for a series of years past.

YEARS.	Sec. 1.	Sec. 2.	Sec. 3.	Sec. 4.	Sec. 5.	Sec. 6.	Total.
1851	$74,632 71	$27,317 17	$40,073 38	$30,451 95	$26,937 64	$23,289 89	$222,702 54
1852	136,016 49	47,858 59	51,651 16	35,904 45	33,288 04	24,171 07	328,889 80
1853	101,124 60	32,101 88	44,403 64	33,128 69	29,602 41	35,803 29	276,164 51
1854	75,298 10	42,256 86	61,674 97	46,187 95	29,099 71	44,120 44	282,642 82
1855	57,875 36	63,016 64	76,597 47	42,361 22	32,354 39	28,125 13	300,330 21
1856	42,954 22	27,181 56	49,232 00	44,436 55	40,147 81	24,489 52	228,441 66
1857	46,113 36	17,953 21	21,990 18	35,598 80	29,922 29	14,291 32	165,869 16
1858	46,630 34	28,398 85	25,876 28	35,831 81	27,260 04	....	163,997 32
1859	102,000 64	26,166 15	37,766 71	26,969 66	22,842 36	....	215,745 52
1860	41,054 96	25,551 84	13,611 45	10,679 26	19,417 25	....	110,314 76
1861	41,797 56	20,261 52	14,598 23	13,444 52	10,177 80	....	100,279 63
1862	40,879 98	20,365 37	20,672 18	16,187 01	10,975 99	....	109,080 53
1863	43,744 56	25,246 02	47,505 71	20,960 89	11,413 74	....	148,870 92
1864	55,490 92	28,769 27	102,167 73	31,491 76	23,874 36	....	241,794 04
1865	103,482 11	136,633 75	37,074 71	69,406 86	35,321 92	....	381,919 35
1866	92,842 07	119,341 50	30,361 72	32,600 95	19,156 88	....	294,303 12

CHAMPLAIN CANAL.

This canal, commencing at the foot of the guard lock on the Mohawk river, and extending to Whitehall, including the Glens Falls feeder, is divided into three superintendent or repair sections. Its whole length is about seventy-six miles, and the repairs have been in charge of superintendents Alonson Welch on section one, and James H. Sherrill on sections two and three.

SECTION NO. 1

Extends from the south end of the guard lock at Cohoes to the south end of the first lock north of Ft. Miller bridge, and is twenty-eight miles in length.

The section was let to Samuel G. Hart at the rate of $25,800 per annum, commencing 1st Oct., 1864, continuing to 1st Jan., 1868.

The structures are:

Twelve locks; one weigh lock; one aqueduct; eleven waste weirs; eight culverts; two work shops; one lock house and collector's office; one timber shed; two dams (one across Hudson and one across Mohawk river); one watch house and collector's office; five foot bridges; two bridges at Waterford; one store house; thirty-six farm bridges; twenty-eight road bridges; seven towing path bridges; seven lock houses; one watch house.

Work performed.—The cradle of the Waterford weigh-lock has received an additional support, and the Hudson river dam has been repaired; all other work properly chargeable to the repair fund, has been performed by the contractor.

The two new piers of the towing path bridge over the Mohawk river at Cohoes were completed last fall, and the ice-breaker of one other pier repaired. The two remaining piers should be rebuilt, as they are located on cribs of timber, filled with stone; the masonry of which they are composed is of a very poor character, and is being materially injured by the ice and current during severe freshets. The new work is of a very substantial construction, and starts from the rock foundation in the bed of the river, having its upper ends in an angular form, the stone being all bolted together with heavy iron bolts, thus forming a permanent structure.

Under the act for the improvement of the Champlain canal, the large amount of work required to be done before the opening for the last season, rendered it necessary that some portions of the same should be performed by the superintendent. Two new bridges have been built—one at Mechanicsville, and the other at Miller's, including berme abutments to each. The bottom of the canal from the railroad bridge to the culvert below Miller's bridge, has been excavated for the required thirty-five feet width of prism. The towing path abutment to Fitzgerald's bridge has been relaid, and the approaches raised and improved.

Work to be performed.—The dams across the Hudson and Mohawk rivers will require rebuilding, as they are in a precarious condition, and not at all reliable. The usual amount of spring repairs will also be required on the structures embraced on this section.

Breaches.—On the 4th day of November, a breach occurred on the Waterford level, causing a detention of three days.

Detailed Statement of Expenditures by Alonson Welch, Superintendent on Section No. 1, *for fiscal year ending Sept.* 30, 1866.

Building bridge superstructures and abutments, widening and excavating prism, in pursuance of act, chap. 186, Laws of 1864	$6,595 56
Hudson river dam	350 00
Miscellaneous expenditure	289 54
Superintendent's salary and clerk hire	1,450 00
	$8,685 50

SECTION NO. 2

Extends from the south end of the first lock north of Fort Miller bridge to Dunham's basin, and includes the Glens Falls feeder and the pond above—in all twenty-four miles in length.

The repairs of this section were let to Harvey Church, at the rate of $19,400 per annum, from the first day of October, 1864, to the first day of January, 1868.

The structures upon it are as follows: Nineteen locks; seventeen waste weirs; nineteen farm bridges; three towing path bridges; one work shop; one dam, (nine hundred feet long), across the Hudson river; three aqueducts; nine culverts; seventeen road bridges; ten lock houses; one store house.

Work performed.—During the fiscal year just closed, a large amount of work has been performed on this section, the greater proportion of which was chargeable to the improvement fund, in pursuance of act, chap. 186, Laws of 1864, and was performed under the direction of the superintendent.

The prism of the Glens Falls feeder has been widened and excavated, rip rap, cement and vertical walls have been constructed, and many of the numerous leaks stopped by concreting. New stone bridge abutments and wood superstructures have been built at Cornell's and Sherman's, the towing path has been raised and graded, and the embankment in many places strengthened by the material taken from the prism. The channel above and below the feeder dam lock and the Saratoga lock has been thoroughly dredged out to the required width and depth of prism.

The lock house at Fort Edward has been refitted, and an inspector, or measurer of boats, employed at Fort Edward in the months of October, November and December, to facilitate navigation. The lock gates, waste weirs and bridges, have received repairs by the contractor, and every effort has been exerted to meet the rapidly increasing business of a canal which has proved so remunerative to the State.

Work to be performed.—The Fort Miller lock has long been regarded as unsafe and should be rebuilt. A new waste weir will be required on the two mile level, and new road bridges should be constructed at Cunningham's and Lowbor's. Extensive repairs should also be made on a large proportion of the other bridges on the section. The arch sluice around the lock at Kenyon's mill on the Glens Falls feeder, ought to be rebuilt this winter, as it is in an exceedingly dangerous condition. The sluices around locks two, three and four require reconstruction, and very many at other points will need thorough repairs. The feeder dam lock should be rebuilt or extensively repaired.

Breaches.—Three breaches have occurred during the past season; one on the 10th day of May, at the foot of the combined locks, causing a detention of three days; another on the 19th day of May, at the Fort Edward aqueduct, whereby navigation was again suspended three days; and the third occurred on the 27th day of June, at the foot of the combined locks, caused by imperfect sheet piling. Navigation was resumed on the third day after the occurrence.

Three boats sank, each causing a detention of about one day.

The supply of water proved ample, and navigation for the season has been remarkably good.

Detailed Statement of Expenditures by James H. Sherrill, Superintendent, on Section No. 2, for the fiscal year ending September 30, 1866.

Improvement of Glens Falls feeder in pursuance of acts chap. 213, Laws of 1860, and chap. 186, Laws of 1864	$33,619 41
Inspector of boats at Fort Edward	182 50
Miscellaneous expenditure	273 65
One-half of superintendent's salary and clerk hire	1,091 64
	$35,167 20

SECTION No. 3

Commences at a point thirty-three feet south of the road bridge at Dunham's basin, and extends to a point three hundred feet north of the foot of the combined locks at Whitehall, a distance of twenty-two miles. The repairs of this section were let to Henry D. Denison, from the first of August, 1864, to the first of January, 1867, at $7,500 per annum. The annual compensation, under chapter 252 of the laws of 1864, was increased to $12,000 from the first day of August, 1864.

The following are the structures upon it:

Eight locks; three culverts; five waste weirs; seven road bridges; twenty farm bridges; four towing path bridges; five small dams on Wood creek; four lock houses.

On this section all of the work done that was properly chargeable to repairs has been performed by the repair contractor, thus relieving the State from any expenditure except the annual compensation, as provided by the terms of his contract, although the salaries of the superintendent and clerk have been equally divided between the two sections under his direction.

The lock gates, bridges, waste weirs and towing path, will require the usual amount of spring repairs, and a new workshop should be erected at Fort Ann. Quite a large amount of work will be necessary to complete the improvement on this section, and the waste weir at Dunham's basin should be rebuilt on the enlarged plan.

Detailed Statement of Expenditures by James H. Sherrill, Superintendent, on Section No. 3, *for the fiscal year ending September* 30, 1866.

Widening prism of canal on one-half mile level (old account)	$93 50
One-half superintendent's salary and clerk hire	408 32
	$501 82

The following are the amounts expended on the Champlain Canal for repairs during a series of years past.

YEARS.	Section 1.	Section 2.	Section 3.	Total.
1851	$23,870 27	$16,844 49	$10,252 07	$50,966 83
1852	37,611 43	19,246 62	18,660 96	75,519 01
1853	38,225 47	18,791 71	21,946 18	78,963 36
1854	31,025 06	24,894 34	16,663 01	73,463 48
1855	48,756 85	24,083 28	17,543 08	90,383 21
1856	21,191 60	11,647 30	12,535 30	45,374 20
1857	54,357 76	9,574 78	8,707 77	72,640 31
1858	42,386 75	24,561 20	14,111 21	81,059 16
1859	37,306 00	15,726 39	11,843 37	64,875 76
1860	26,997 46	16,621 80	12,401 70	56,020 96
1861	12,305 84	11,488 99	4,952 97	28,747 80
1862	16,752 47	10,666 85	8,668 22	36,087 54
1863	27,673 30	11,495 96	13,795 20	52,964 40
1864	27,021 63	22,310 09	10,884 79	60,216 51
1865	45,042 85	29,448 48	18,552 54	93,043 87
1866	33,359 03	21,206 42	12,501 82	67,067 27

BLACK RIVER CANAL.

The Black River canal extends from Rome to Lyons Falls, a distance of thirty-six miles; and there are connected with it, and forming part of its navigable length, the Delta feeder, navigable for one and a quarter miles; Boonville feeder, navigable for ten and a half miles; the river above Forestport dam, navigable for two miles; improvement of the Moose river above Lyons Falls dam, one and a half miles, and the improvement of the Black river, forty-two and a half miles, making a total navigable length of ninety-three and three-quarter miles.

The canal and river improvements are divided into three superintendent or repair sections, all of which, from February 1st, were under the direction of Robert B. Nichols, as superintendent, and prior to that date were in charge of H. J. Goodwin.

SECTION No. 1

Extends from the junction of the Black River canal with the Erie canal, at Rome, to a point one thousand feet north of lock No. 70, and is about twenty-four miles in length.

The following are the structures upon this section:

Seventy lift locks; one guard lock; ten culverts; two draw bridges across Delta feeder; nineteen lock houses; one aqueduct over Rome and Ogdensburgh railroad; eighteen farm bridges; two farm bridges owned and supported by individuals; one dam across Lansing-kill; five waste weirs; fifteen road bridges; two road and change bridges; five aqueducts.

The contract for the repairs of this section was awarded to William McArthur for the term of three and three-fourth years, commencing April 1, 1866, and expiring January 1, 1870, at a yearly compensation of $16,440.

Work performed.—In the interim between the first day of January and the first day of April, being the dates of the expiration of the old and the commencement of the new contracts, the repairs of the section were assumed and maintained by the State, every effort being exerted to place the same in as perfect a condition as the limited time would allow. Ninety-three old gates were removed from the locks and replaced by new ones; of this number, there were inserted by the State thirty-four, by the retiring contractor four, and by the present contractor fifty-six. The irons and castings were found to be very badly worn, and seriously impeded the opening and closing of the gates; in many instances they were replaced by new fixtures, and the old ones were readjusted.

The remaining gates, as well as a large proportion of the sluices which pass the water around the locks, received extensive repairs. Numerous bars had been formed by the streams running into the canal, all of which were removed prior to the opening.

Work to be performed.—At least twenty-five new lock gates should be inserted; the mitre sills, many of which are in a dilapidated condition, should be thoroughly repaired, and when necessary, replaced by new. The sluices around the locks will require very general repairs and not a few will have to be extensively improved, in order to place them in a reliable and substantial condition. The material of which many of the locks are constructed is a perishable limestone, not calculated to resist the action of the water; the masonry being in a worn and crumbling state, the water finds its way through the courses and thence to the sluices, thereby greatly damaging the embankment and seriously injuring the structures themselves. This could be remedied by filling in with concrete, which would prove an economical expenditure.

The lock houses require repairing and renovating to make them tenantable; the bridge superstructures should be thoroughly repaired; the towing path in many places graded, and the surface raised to its original height. The house for the accommodation of the lock tenders at lock six was consumed by fire some years ago, and ought to be rebuilt.

Breaches.—On the first day of July two gates were broken out of lock thirty-four, two days being consumed in their reconstruction; and on the 28th of the same month the sluice around lock sixty-six gave away, causing a detention to navigation of twenty-four hours.

SECTION No. 2

Commences at a point one thousand feet north of lock No. 70, and extends to the junction with the Black river at Lyon's Falls, a distance of twelve miles. It includes the Boonville feeder to Forestport, a distance of ten and a half miles; also, the river above the dam at Forestport, some two miles in length, and the Moose river improvement, one and one-half miles long, above the dam at Lyon's Falls.

The Woodhull, North and South Branch reservoirs are also embraced on this section.

The following are the structures :

Thirty-nine lift locks; one guard lock; thirteen lock houses; one aqueduct; six waste weirs; ten culverts: two dams; sixteen road bridges; twenty-two farm bridges; one farm and change bridge; one road and change bridge; one towing path bridge.

This section has been awarded to Arch McArthur, for a period of three and three-fourth years from the first day of April, 1866, to the first day of January, 1870, at the rate of $7,980 per annum.

Work performed.—The repairs of this section have been maintained by the repair contractor, and quite a large amount of work has been performed on the bridges, lock-gates and sluices. Prior to and after the opening, the bottom in several places was excavated and after the State dredge employed at different localities.

Work to be performed.—All of the structures require general repairs, particularly the sluices, many of which are in a decayed condition, and some few ought to be rebuilt. For want of proper protection in past seasons, the bridges are not in a very sound condition, and are the occasion of frequent complaints, which in numerous instances have proved to be just. They should all be thoroughly examined and placed in proper repair; the unpleasantness of being continually embarrassed by these complainings would then be removed.

The gates of the guard lock at Forestport should be replaced by new ones, those now in use being in a worn out condition and liable to break away and seriously endanger the level depending for protection upon this structure.

North of Boonville, at several places, the canal is built over lime rock ledges, which are full of seams. Although the channel lies several feet above the rock, the water finds its way down through the earth into the fissures, washing away the bottom of the canal, and forming what is termed " sink holes," from which serious trouble is often experienced.

There is frequently a great loss of water from this source, and a much larger volume has to be passed from the Summit level than would be required were these places properly repaired. The only remedy is to excavate the earth from the bottom down to the rock, and cover up the seams with rubble masonry laid in cement. In some cases it would perhaps be necessary to construct a vertical wall (in cement) on the sides of the canal.

There are also a few similar sink holes south of Boonville.

The coping of the vertical wall between locks one hundred and two and one hundred and three should be replaced. The towing path ought to be graveled and otherwise improved.

Breaches.—On the seventh day of December a breach occurred on this section, but owing to the near approach of the close of navigation, it was not repaired until last spring.

Sunken Boats.—During the season four boats have been sunk, but they did not occasion any interruption to navigation.

The reservoirs upon the head waters of the Black river, for the maintenance of the supply of water for the Black River canal and a large portion of the Erie, have received no repairs during the season; the only chargeable expenditure being the remuneration of the man employed in taking care of them.

The roads leading from Dawson's to South and North Branch are in an almost impassable condition, and the only means of access from South Branch to Woodhull consists of a trail through an unbroken wilderness. Should an accident occur to either one of the works, extreme difficulty would be experienced in the transportation of materials for repairs. During the coming year it is contemplated to improve them, and to cut a new channel for the discharge of the surplus water of the North Branch reservoir; also to repair the valves, and otherwise facilitate operating them, by placing rollers behind the levers. This channel becomes necessary to pass off the flood waters when the reservoir is full, there being times when the present one is not of sufficient capacity, and the work is placed in imminent danger of being injured or carried away. At present the water in North Branch has been exhausted for canal purposes, and that of the South Branch is being largely drawn upon for the requisite supply.

The Erie canal at Rome is dependent upon these reservoirs for its supply of water during the dry season, and the importance of keeping them in good order cannot be over-estimated.

A suitable building should be erected at North Branch for the accommodation of the man employed in taking charge of the works.

SECTION NO. 3

Includes the Black River improvement from Lyons Falls to Carthage, a distance of forty-two and a half miles. The repairs were contracted for by Ward & McVickar, from the first day of March, 1865, to the first day of January, 1869, at $9,750 per annum.

The following are the structures upon this section: One road bridge at Carthage; one draw-bridge at Beach's; one draw-bridge at Illingsworth's; one draw bridge at Carter's; one draw-bridge at Tiffany's, one dam and lock at Otter creek; and the dam at Carthage.

The lock and dam upon this section may need some slight repairs, the bridges to be in part replanked, and two of them repainted. Navigation upon the river has been well maintained during the season, owing to the full supply of water, and in consequence the repairs have not been of an extensive character.

The contractors in charge, have performed all of the work done under the repair fund. The construction of the lock and dam near Beach's bridge is elsewhere mentioned, in pursuance of the act for the improvement of Black river.

The following are the amounts expended for repairs on the Black River canal and Black River improvement, for a series of years past.

YEARS.	Section 1.	Section 2.	River improvement.	Total.
1851	$7,127 35	$15,574 18		$22,701 53
1852	8,370 56	22,240 37		30,610 93
1853	6,895 85	19,324 03		26,219 88
1854	12,321 43	16,256 82		28,578 25
1855	9,347 28	24,514 40		33,861 68
1856	4,826 55	12,377 18		17,203 73
1857	3,935 08	9,860 97		13,796 65
1858	3,999 00	14,622 75		18,621 75
1859	8,107 70	16,818 03		24,925 73
1860	4,821 54	14,724 85	$2,741 55	22,287 94
1861	9,962 37	9,639 59	3,799 92	23,401 88
1862	11,982 98	4,995 35	7,651 31	24,629 64
1863	10,456 35	5,455 16	4,043 34	20,454 85
1864	12,034 37	5,418 65	4,193 47	21,646 47
1865	24,084 18	9,107 66	16,617 92	49,809 76
1866	24,377 18	13,287 05	*9,447 81	47,112 04

* Repairs

REMARKS.

Ordinary Repairs Erie Canal.

The work performed upon the Eastern division, and chargeable to the repair fund, beyond that embraced in the repair contracts, is as enumerated below.

The masonry of the piers of the lower Mohawk aqueduct received a large amount of necessary repairs last spring, and more will be required before the opening next season. I am of the opinion that the plan of bracing the sides of the trunk will have to be changed in order to place the structure beyond danger. One of the piers has already been forced off again, starting from a point in the masonry below where it was bolted, and has been temporarily braced from the end to the rock in the bed of the river.

With the exception of one mile which is intended to be completed during the coming winter, the vertical docking above Schenectady, for a distance of two miles, on both berme and towing path bank, has been rebuilt, and a new trunk inserted in the upper Mohawk aqueduct. This work was reserved from the repair contract at the time of awarding the section.

The weigh lock at Utica has been thoroughly repaired, the scales adjusted, and a scale beam inserted to take the place of the old swing balance and weights. Its manner of working is perfect, and all possibility of error is avoided by the load being always indicated on the beam.

Extraordinary Repairs Erie Canal.

By the removal of the benches, the improvement between locks one and two has been completed, as originally contemplated, and this part of the canal is in perfect order, and fully meets the requirements of the commercial public.

The stone dam across the Mohawk river, at Rexford Flats, is completed, and the canal is now receiving the benefit of this much needed improvement. The structure may safely be termed a success, and fully meets the requirements for which it was intended. A plan of it is herewith presented.

The Canal Board authorized the performance of the following work, chargeable to the extraordinary repair fund:

Concreting and replanking bottoms of locks four, seven, fourteen, seventeen, twenty, twenty-three and twenty-six.

Improvement of Rocky Rift feeder, by enlarging the channel from the bulkhead to Castle Creek culvert, and making an alteration in the bulkhead so as to admit of larger valves, or gates, to increase the water way.

Removing a portion of the wall bench and raising the slope wall in the towing path side, between Castle Creek and Schuyler's landing.

Removing wall benches at different points between Mohawk and Frankfort.

Constructing four hundred feet of docking on the berme side of the canal at Rome, adjacent to the freight depot of the Rome, Watertown and Ogdensburgh railroad.

With the exception of the alteration of the valves in the bulkhead of Rocky Rift feeder, all of the above work has been completed.

The work of concreting the foundation of lock number one, which was commenced in 1865, and abandoned in consequence of high water, was completed last winter.

IMPROVEMENT OF ALBANY BASIN.

Act, chap. 503, Laws of 1866, authorized the contracting board to make, under direction of the Canal Board, certain specified improvements in the Albany basin. The resolutions adopted were to enlarge the openings of the basin as follows: At the south end, by cutting off the southern portion of the pier to a point fifteen feet north of Hamilton street bridge, removing said bridge and the pier on which it rests, and excavating to the depth of ten feet below low tide, the whole area from the upper side of the bridge to the lower end of the pier. At the north end, by cutting off about one hundred and seventy-five feet of the pier, also a triangular piece of about sixty feet on the shoreside, above the opening, and filling in for a distance of two hundred and ten feet the dock opposite, for the purpose of making the new work conform to the line of dock on the piece cut off. This improvement was placed under contract on the 22d of May, and has since been considerably advanced, although at first it was much delayed by a disagreement arising between the State and city authorities as to the meaning of the law, and the liability of the city or State to assume the damages to land and property thereby incurred. The whole will be completed this fall, and the accompanying map illustrates the nature and extent of the improvement.

CHAMPLAIN CANAL.

On this canal there has been performed no work chargeable to the extraordinary repair fund.

ORDINARY REPAIRS.

The trunk of the Moses Kill aqueduct has been strengthened on the berme side by the insertion of extended needle beams, supported by a vertical truss, and the sides of the trunk braced from the beams.

The pier above the bottom of the trunk has been taken down and relaid, and the stone bolted together.

The most important work now in progress on this canal is being performed under act, chap. 186, Laws of 1864, entitled the

"IMPROVEMENT OF CHAMPLAIN CANAL."

The work placed under contract in 1864 was all completed last year. The contracts made in 1865 were progressing towards completion, but owing to the scarcity of laborers the work did not proceed as rapidly as the Commissioner desired. Enough, however, has been done to demonstrate what will be the effect upon the canal when the improvement shall have been entirely completed. Considerable work not included in the regular contract has been done by the superintendents and repair contractors All of the work is now under contract, to be completed the first day of May, 1867, with the exception of raising and protecting the towing path on Wood creek, from Fort Ann to the Narrows, and from Parish lock to the guard lock, making an aggregate distance of five and one-half miles. The last named work is not absolutely necessary to obtain the required dimensions, but it is important, for the reason that it will place the towing path in good condition, and make that part of the canal navigable in time of freshet, when the water is from two to four feet above the ordinary level.

The Canal Board directed the rebuilding of the Moses' Kill lock upon the enlarged plan, and appropriated $21,300 for its reconstruction. It has already been placed under contract to be completed by the first day of May next, and a vigorous prosecution of the work is intended. The amount of the appropriation is the estimated cost of rebuilding an enlarged lock over and above the expense of one of the present size. A plan of the new structure is herewith submitted.

The total amount of the appropriation for the Champlain improvement, is $542,500; this is $7,500 in excess of the estimate made in 1864, and it is confidently believed that the work can and will be completed within the estimate, unless some change of plan not now contemplated should be adopted.

Very strong efforts have been made to build vertical and slope walls instead of docking. It would seem to be unwise to adopt such a plan at present, as the time is undoubtedly not far distant when this canal, for its entire length, will be increased to the dimensions of the Erie. This enlargement has been contemplated for a number of years, and all of the locks which have been built during the past twelve years, viz., the three locks on the Waterford side cut, and twelve locks and three guard locks on the main canal, have been constructed of the dimensions required by the amendment to the State Constitution in 1854. There now remains eight locks and one guard lock of the old capacity, including the Moses' Kill lock, now under contract for reconstruction.

These new locks can be of no particular benefit, except for their substantial character, until all the rest shall have been built on the enlarged plan. This will require the canal proper to be enlarged in conformity with the structures, as the present improvement will not accomplish this object.

The rapid increase of tolls and tonnage warrants the conclusion that the day is near at hand when the proposed enlargement must be consummated. For the past year these receipts have been largely in excess of those in any former year since the inauguration of the canal, and with the exception of the Erie, have exceeded those of any canal in the State, being sixteen and three-fourths per cent. more than those of the Oswego for the same period. The total receipts from this source for the fiscal year 1866, were $180,515.15, while in 1865 they only amounted to $154,523.60, thus showing in favor of last year an increase of $25,991.55.

For a long period, and especially during the last five years, the attention of the public has been more or less directed to the rapidly increasing interests and prosperity of the northern portion of our commonwealth. Its vast mineral resources and valuble forests have attracted capitalists and stimulated enterprise in that locality. The Champlain canal, the natural and, in fact, the only outlet to the markets of the east and south, for the iron, lumber and other products of this large section of country, of necessity became, and still is, an object of great solicitude and interest to all classes of business men. The Commissioner has been duly impressed with the responsibility devolving upon him in the discharge of the official duties appertaining to this canal, and has endeavored in the improvements already made under his direction, to give this portion of our public works its increased capacity with as economical an expenditure of funds as the advanced prices of labor and materials would permit. During the ensuing suspension of navigation, it is his intention to press with all possible vigor the work already under contract for the completion of the improvement under the present appropriation, so that on the 1st day of May next the entire canal shall have a uniform width of prism of thirty-five feet, with a depth of five feet, and thus be placed in a condition to cope successfully with the other canals, and to demonstrate that probably no other similar expenditure would have proved of greater benefit, or have been attended with more beneficial results to the interests of the State and our canal system.

The amount of work done on the improvement, up to 30th Sept., 1866, is $262,238.84. The estimated cost of work under contract is $264,443.61.

BLACK RIVER CANAL.

EXTRAORDINARY REPAIRS.

The pier at the foot of Otter creek, the construction of which was authorized by the Canal Board in 1863, has not been built. A portion of the materials has been delivered, and the work ought to be completed this winter.

ORDINARY REPAIRS.

The repair contracts on sections one and two expired on the 1st day of January and March respectively, and were relet to take effect on the 1st day of April. Upon assuming charge of this canal, the Commissioner found a large proportion of the structures, especially lock gates and bridges, in a very dilapidated condition, and extensive repairs were required to be made prior to the opening of navigation, which, owing to the large amount of work performed, was delayed until the seventh day of May.

In the interim between the expiration of the old and the commencement of the new contract, the repairs were assumed by the State, under the direction of the superintendent; these repairs, together with the work performed by the present contractor, left this portion of the canal more thoroughly improved than it ever before had been since its inauguration.

IMPROVEMENT OF BLACK RIVER.

The construction of the lock and dam located about three miles above Beach's bridge, was placed under contract in 1865. It has not progressed as rapidly as was anticipated, in consequence of the high stage of water during the greater part of the season having greatly impeded the work. The foundation of the locks is laid, the side walls are carried up about eight feet, and the vertical walls at the head and foot are partially constructed. The lock, together with the canal above and below, will be completed during the winter. The materials for the dam are all delivered, and its construction will be commenced early in the spring, so as to secure to navigation the full benefit of the structure during the latter part of the season of 1867.

GENERAL IMPROVEMENTS.

Erie Canal.

The most important improvement required on this division is the removal of the old wall-benches and slope-wall. This is a work very essential to navigation, and one from which great benefits would be the immediate result. This portion of the enlargement was constructed prior to 1842, and now embraces sixty-nine miles of this canal, viz:

	Miles.
From lock No. two to West Troy side cut	4.30
" " " three to lock eight	3.30
" " " eighteen to Schenectady	13.40
" " " twenty-three to Fultonville	5.80
" Spraker's to Little Falls	18.30
" Little Falls to Utica	21.40
" Newville to Wood creek, through village of Rome	2.50
Total	69.00

The canal built previous to 1842 was only forty-two feet wide on the bottom, with slopes and benches on the sides, thus giving seventy feet surface of water and seven feet depth. This proved to be disadvantageous for the purposes of navigation, and in 1848 the plan for future enlargement was altered to fifty-two and one-half feet on the bottom, and subsequently to fifty-six, the surface and depth remaining the same. I would respectfully, yet earnestly, urge upon the Legislature the importance of this work, and the necessity of at once adopting some measures for making the desired improvement. I am confident that no other expenditure would secure greater benefits to the Erie canal, or be attended with the increased advantages that would be the immediate result.

It is estimated that this work will cost $26,000 per mile, making an aggregate expenditure of $1,794,000.00. I would respectfully recommend an appropriation for this purpose.

The iron bridge over the Erie canal, at Canal street, in the village of West Troy, is not of sufficient strength for the span, and there is imminent danger of its failing. I would recommend that it be replaced by a new structure of a different plan. The iron bridge at Union street, in the same village, is also in a dangerous condition, and will require considerable repairs.

The foundation of the waste weir at Schenectady has been undermined, and the structure has not been in use for two years. Its safety required that the opening should be closed by sheet piling, and then filled in with earth to make it water tight. Very extensive repairs are necessary to place it in a permanent condition, and from the fact that it is the only waste weir on the level (with the exception of the Upper Mohawk aqueduct, which is located at the extreme end), the interests of navigation would seem to demand the necessary expenditure for its repair, and the consequent protection of the high and dangerous embankment composing a portion of the level and adjacent to the structure.

On the four mile level west of Schenectady, where the disastrous break occurred in June last, some improvements have been rendered essential for properly securing the work, and preventing the possibility of another suspension of navigation. For a distance of one-half of a mile the embankment was built in the Mohawk river, and protected on the outside by a heavy rip rap and slope wall, it being high river embankment and subject to periodical damages by freshets and the breaking up of the ice in the spring. The material of which the prism of the canal is formed is not of such a character as to be impervious to water. To this cause can be attributed the recent breach, and the one which occurred in the same bank, a short distance below, in the year 1859. I am of the opinion that the inside walls should be removed, the sides and bottom excavated from one and one-half to two feet, the whole lined with a good water-tight material, and the side walls rebuilt. When this or some similar work shall have been done at this point, the canal will be secure, and not until then.

The removal of the benches between locks one and two, and the proposed removal of the remaining bench extending from lock two to West Troy (should the Legislature at its ensuing session provide funds for that purpose), will greatly increase the capacity of the canal between West Troy and Albany, and a corresponding increase of business may reasonably be expected. This has already been demonstrated on that portion of the canal which has been improved, as testified by the receipts from tolls and the increase of business of the city of Albany. In view of this change, and to meet the demands of the commercial interests thereby benefitted, I would recommend the construction of a new and enlarged lock in place of the old and abandoned one at lock two. For a number of years there has only been one in use at this point, and the proposed new structure would give the canal equal capacity with the other portions of the enlargement.

The single locks at West Troy and Port Schuyler side cuts for the passage of boats to and from tide water, are inadequate for the purpose intended, and it is very evident that they can not compete successfully with the double locks in use elsewhere on the canal. Large numbers of boats awaiting lockage frequently accumulate in consequence, and very seriously impede navigation. The only remedy would be the construction of another tier of locks alongside of the present structures. They could be built during the season of navigation and suspension, and would afford no inconvenience during the progress of the work. I would respectfully solicit the attention of your honorable body to this subject, and particularly recommend an appropriation for an additional tier of locks at the West Troy side cut, as I am of the opinion that the proposed improvement at this point would relieve the State from a like expenditure at Port Schuyler. The Legislature of 1864 passed an act for the construction of the locks above mentioned, but omitted to provide funds therefor.

I would also direct especial attention to the impolicy of rebuilding road and street bridges of wood. The law of 1866 prohibits the Commissioners from making a change of plan in repairing any structure without referring to, and receiving the sanction of the Canal Board. Whenever it becomes necessary to renew any of these structures, it would seem to me to be an economical policy to reconstruct them of iron, especially on the Erie canal. If rebuilt of wood they should include the iron chord.

SUPPLY OF WATER.

That an additional supply of water for the Eastern Division is essential and necessary for the proper maintenance of navigation has long been conceded, and the deficiency was supposed to have been remedied by the construction of the De Reyter reservoir, but the experience of the past two years has proved that the supply from that source is wholly inadequate to the demand, and that relief must be secured from other waters.

The construction of the proposed Fish creek feeder has rechived much discussion, and mention of it has been made by my predecessor in office, who urged it upon the attention of the Legislature, in his very able reports upon this subject. After a careful investigation of the proposed diversion of the waters of Fish creek for a feeder, I am of the opinion that they present the only practicable resource from which the needed additional supply can be obtained. From the fact that the remarks of Mr. Skinner, the late Commissioner, are so very lucid in reference to this proposed improvement, I have assumed the liberty of reproducing them, and in so doing fully concur in the ideas therein expressed, and most respectfully solicit the attention of your honorable body to its careful perusal. That Fish creek would afford an ample and reliable supply I have no doubt, and the interests of navigation would seem to demand its diversion into a feeder, and would fully warrant the outlay, expensive though it would be. It is a somewhat singular fact that since the construction of the Erie canal but one feeder has been introduced on this division, and that another is needed at the present time, no one having the interest of our canal system at heart will deny. Why such an important improvement should have been postponed, without receiving the careful attention it so justly merited, the Commissioner is at a loss to imagine, yet confidently hopes that at the ensuing session of the Legislature this subject will meet with a favorable consideration, and some measure be devised for the immediate construction of the work, since no other equal expenditure would be attended with more beneficial results.

" CANAL COMMISSIONERS' OFFICE,
ALBANY, *January* 3, 1861.

" *To the Canal Board:*

The undersigned, one of the committee to whom was referred the subject of supplying the Rome, or long level of the Erie canal, with water, respectfully submits the following report:

The undersigned starts with what seems to be admitted on all hands, that an insufficient supply of water is furnished on that level for the present purposes of navigation, and that this insufficiency will be increased with the increase of business and lockages.

I herewith submit a full and well considered analytical examination of the whole matter, prepared by S. H. Sweet, late Resident Engineer, and intend to make this the basis of my present remarks. The supplies and deficiencies, to and from various points between locks forty-seven and thirty-nine, are distinctly and briefly stated, as well in relation to the present as the prospective trade on the canals.

The deficiency of water between lock 47 and Higginsville, or nine miles west of it, after the De Ruyter is brought in, with an estimated supply of 3,891 cubic feet per minute, will be 1,707 cubic feet per minute. The distance to be supplied from Rome, west of Higginsville, will be nine miles, and the whole distance unsupplied, east of Higginsville, exclusive of Oneida lake, will be 18⅚ miles, after the De Ruyter is brought in. If this deficiency has to be supplied from Rome, then it is evident, from the subsequent statements of Mr. Sweet, that the deficiencies to lock 39 will be so great, that even a five foot navigation cannot be maintained, in the dry season, between Rome and lock 39.

But can the estimated supply from the De Ruyter, of 3,891 cubic feet per minute, be relied upon?

If that amount is discharged from the reservoir, the residue, after deducting evaporation, lockage and other wastage, will probably reach the canal in regular supply, if the State appropriates and pays the damages for the whole bed of the stream, and all the mills and other erections thereon, from the reservoir to the canal. If this be not done, the water discharged from the reservoir must pass through a colonnade of mill-dams from it to the canal. These dams will be closed at night, and when well filled to their full capacity, the State will probably be allowed to take the wastage until the mills are set running in the morning; consequently the supply will be irregular, and then, as heretofore, the water at the west end of the level will run down by the discharges at lock 47; the boats on the west end of the level will be aground in the morning, and must so remain until the level is raised by the discharges from the mill ponds.

If we have not yet had enough of this sort of partnership, between the State and private parties, in respect to waters needed for canal purposes, we shall probably get it after this reservoir is constructed, and an attempt to supply our needs for water from private mill dams. I refer to the remarks of Mr. Sweet on this subject, in note G of his statement.

In the estimate of the cost of construction of this reservoir, I do not understand the damages for the bed of the stream and the structures upon it are embraced.

The undersigned now passes to that part of the level from nine miles west of Higginsville east, and to lock 39 at Little Falls. The total deficiency on this part of the canal, including the Oneida Lake canal, is 9,369 cubic feet per minute, and without that canal 8,268. The distance from lock 39 to Higginsville, 48⅝ miles. The present supply taken in at Rome, and east of that place, is 15,030 cubic feet per minute. The required supply on the estimated trade, 18,801, deficiency, 3,771, showing that if the losses by evaporation, filtration and waste, between Rome and nine miles west of Higginsville, are made good by a feeder between these two points, all the deficiencies east of Rome will be supplied at that point, and by feeders east of it to lock 39.

A deficiency in the supply of water on this level, even for present purposes, seems to be admitted on all hands, and it is anticipated this deficiency will largely increase when we fill the canal to its enlarged capacity of seven feet by seventy, and we have seen that the De Ruyter reservoir cannot supply our wants, even on the western end of the level, from nine miles west of Higginsville to lock 47; leaving the intermediate distance to Rome unsupplied, or to be supplied from that place. The undersigned refers to the reports of Division Engineers Van Vleck and Taylor, read to this Board in December last, and also to the report of the State Engineer in November last, in reference to a resolution of this Board, of September 6, 1860.

Mr. Taylor estimates that a supply of 8,000 cubic feet per minute may be obtained from Fish creek, to be taken into the canal four miles west of Rome. This supply is obtained from a living, running stream of water, and taken through a channel owned by the State, not liable to obstructions and diversions by mills and mill dams, nor subject to the claims of riparian owners.

But it is urged that heavy claims for damages will be interposed by citizens of Oswego, for the diversion of this water from a tributary of the Oswego river.

Let me inquire, one moment, into the extent of any claim of this sort; and the justice of it, if any should be established. All the leakage, soakage and drainage, from the canal west of Rome, is into lands bordering on Wood creek, a tributary of Oneida lake, and into lands bordering on that lake. None of it comes east of that point. All the discharges from the Erie canal through the Oneida Lake canal, are into the lake, being 1,101 cubic feet per minute. All the discharges at lock 47, are on to the Syracuse level, where they flow into tributaries of the Oswego river, and are equal, during the dry season, to 3,072 cubic feet per minute, supplied by the State from its numerous reservoirs. I may venture the remark, with much confidence, that not a drop of water from the Fish creek feeder will find its way east of Rome. Some of it may, but I do not think so. The waters of the contemplated feeder will crowd the natural and artificial flows into the canal west of it towards lock 47, and increase the discharges from that point into the Syracuse level. The loss to Oswego will be the difference in evaporation, &c., by the feeder water passing round into the Syracuse level by the contemplated route, and the more direct flow into the Oneida lake.

But one moment to the equity of any such claim against the State, aside from any considerations resulting to the commerce and trade of Oswego, by a full supply of water on this level.

The drainage basin of the Oswego river is more than 75,000 square miles, and is equal to one-sixth of the area of the State.

Into this basin the State, by artificial channels, discharges from

Lake Erie and Chemung river, a volume of water equal to	11,887	cub. ft.	per min.
From reservoirs during the dry season	5,816	"	"
From reservoirs an increase by the increase of heads to certain reservoirs, as per report of State Engineer	3,072	"	"
Total	20,775	"	"

By the application of these waters to the purposes sought, the commercial enterprise of Oswego will be fostered and promoted equal to that of any other place in the State, located upon our enlarged water communications. Has the State dealt harshly with that enterprise? Has she not given more than she proposes to take? And yet we should not take that even, if it can be avoided, nor if we are to respond in damages to an amount exceeding the public advantages to follow the appropriation. As the supply from the De Ruyter reservoir cannot be made available the next season, when the same may be needed, and as the supply from that source is confessedly inadequate to our wants, even when secured, the undersigned, in view of the great interests at stake, can cheerfully put himself on record in favor of the proposed Fish creek feeder. If any doubts shall be suggested in regard to the supply from this source, he will remark that the water of Salmon river, as he is informed, can be brought into aid at small expense.

Respectfully submitted, W. I. SKINNER.

UTICA, *Dec.* 29*th*, 1860.

Hon. WM. I. SKINNER, *Canal Commissioner:*

Dear Sir—In answer to your several inquiries, made 21st inst., I beg leave to submit the following

REPORT.

NOTE A.

The quantity of water brought to the basin drained by the Oswego river, from Lake Erie and Chemung River .... =11,887 c. ft. per m.

NOTE B.

The quantity carried in the same direction from reservoirs during dry season .... =*5,816 " "

NOTE D.

The quantity required and used by the Oneida Lake canal .... = 1,101 " "

NOTE G.

The supply from De Ruyter reservoir for 100 days .... = 3,891 " "

NOTE C.

The present supply between lock No. 47 and Higginsville .... = 7,584 " "

NOTE H & E.

The quantity required for a trade of 300 lockages between said points........... =13,179 " "

NOTE F & H.

The deficiency for above trade between said points.......................... = 5,598 " "

NOTE F.

The deficiency after adding De Ruyter to present supply for said trade and distance.... = 1,707 " "
The distance that water will be sent east of lock 47 with present supply............ = 5⅓ miles.
The distance the water will be sent east lock 47, with De Ruyter added to present supply .... = 24½ "
The distance from lock No. 47 to Higginsville = 33½ "
The distance west of Higginsville to be supplied from Rome, after construction of De Ruyter.......................... = 9 "

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* See Note K for this quantity, as increased by State—3,072 cubic feet per minute.

NOTE J & H.

The total deficiency between locks 47 and 39, including Oneida Lake canal............ = 9,369 c. ft. per m.

NOTE I.

The present supply between Higginsville and lock No. 39 at Little Falls............. =15,030 " "

NOTE J.

The quantity required for a trade of 300 lockages per day for same .... =18,801 " "

The deficiency for above trade and distance = 3,771 " "

NOTE K.

The distance supplied west lock 39, with present supply and above trade.......... = 30 miles.

NOTE I.

The distance from lock 39 to Higginsville.. = 48$\frac{5}{6}$ "

NOTE K.

The distance east of Higginsville (exclusive of Oneida Lake canal) unsupplied....... = 18$\frac{5}{6}$ miles.

The intermediate distance unsupplied (including do.), being 28$\frac{1}{6}$ miles west, and 18$\frac{5}{6}$ east, of Higginsville (with present supply between Higginsville and lock 39),...... = 47 "

NOTE E.

The quantities discharged at different periods into Syracuse level.

Following are calculations in detail.

Respectfully submitted, S. H. SWEET.

NOTE A.

The quantity of water brought to the basin drained by the Oswego river from Lake Erie and Chemung river.

1*st. From Lake Erie.*—Under a Senate resolution, dated January 26, 1850, the Canal Commissioners caused an examination and report to be made by Henry Tracy, Esq., upon the subject of a supply of water for the Erie canal from Buffalo to Montezuma, to be drawn from Lake Erie.

From the report of Mr. Tracy, the Commissioners fixed the size of the prism of the canal, from Tonawanda creek east, of capacity sufficient to deliver from Lake Erie at the following points, the following quantities, cubic feet per minute, viz.:

To pass	Black Rock	35,020	cubic feet	per minute.
do	Tonawanda creek	31,240	do	do
do	Pendleton	31,000	do	do
do	Middleport	27,200	do	do
do	Albion	24,000	do	do
do	Brockport	21,000	do	do
do	Rochester	17,000	do	do
do	Clyde	6,100	do	do

Measurements were made under the direction of John D. Fay, Division Engineer, to find the actual discharge from Lake Erie. The measurements being made during the dry season of 1858, resulted as follows, viz.:

Mean velocity $\frac{68}{100}$ miles per hour, between Black Rock and Tonawanda, discharge 31,370 cubic feet per minute at Tonawanda. Hence the actual discharge being a trifle over the quantity contemplated, there must of necessity be delivered at Clyde at least 6,000 cubic feet per minute. The quantity passing Nov., 1860, as measured by Mr. Schamerhorn = 3,700 cubic feet per minute, the amount used.

2*d*. *From Chemung river*.—The water from this river is taken into the Chemung feeder at Gibson, and discharged into the summit level of the Chemung canal at Horseheads, 16 miles in length. The stream seldom, if ever, fails to supply the demand. There have been times when the full capacity of the feeder has not been realized, caused by neglect in keeping the bulkhead and structures in repair, and clearing the prism of a heavy growth of weeds.

The theoretical discharge of this feeder = 12,050 cubic feet per minute, but the actual discharge at canal = 10,870, and supplies the canal south from junction to Elmira, six miles, and north to Seneca lake, 17 miles. The quantity required and fed south is—supply being 10,870

24 lockages per day × 12,000 cubic feet each = cubic feet per minute	170
Add 25 per cent for flushing boats out of lock, = cubic feet per minute	42
Evaporation on 6 miles, one-third inch from surface, = cubic feet per minute	25
L[illegible] h lock gates, = cubic feet per minute,	700

Filtration on 6 miles, 63½ cubic feet per mile, = cubic feet per minute	381	
Waste at structures, 9 cubic feet per mile, = cubic feet per minute	54	
		1,372
Cubic feet per minute, started north =		9,498
The quantity lost on this in passing through the canal to Seneca lake:		
Evaporation on 17 miles one-third inch from surface = cubic feet per minute	75	
Filtration on 17 miles = cubic feet per minute	1,080	
Waste on 17 miles = cubic feet per minute	156	
		1,311
Total cubic feet per minute discharged into Seneca lake from Chemung river		8,187
Total cubic feet per minute discharged into Seneca river, from Lake Erie		3,700
Total c. ft. per min. discharged into Seneca lake and river,		11,887

Note B.

The quantity of water discharged into basins drained by the Oswego river from reservoirs, during the dry season, in excess of the natural flow of the same.

If measurements are not made before the construction of a reservoir, the only method to obtain the "natural flow" from lake reservoirs, would be the drainage from valley or basin, minus the excess of evaporation over fall of rain on pond for a definite period; and the total supply, the artificial capacity added to the "natural flow." The following supplies are calculated for 120 *days*, July to October inclusive, 10 *inches fall of rain*, 0.28 as the ratio of *drainage* to the total fall of rain, and 33 inches *evaporation* for this period, all adopted from the following facts and experiments, viz:

The average fall of *rain* in this State, from 1826 to 1856, for July, August, September and October = 14.85 inches.

The ratio of *drainage* to the total fall of rain and snow for the year, was found to be for 1835, 1837, 1838, 0.44 per cent, from July to October, 0.28 per cent, determined from experiments by John B. Jarvis, Esq., on Madison and Eaton Brook reservoirs.

Evaporation—(Dry Season.)

From experiments made in St. Lawrence county, $=\frac{33}{100}$ of an inch daily.

From experiments made by J. Trempter, Seneca lake, $=\frac{40}{100}$ of an inch daily.

From experiments made in Central Park, New York, $=\frac{50}{100}$ of an inch daily.

From experiments made in Erie and Chenango canals, $\frac{20}{100}$ to $\frac{33}{100}$ of an inch daily. And from other sources, found to be for the year 49 inches, in this State.

Taking the average of the five experiments, we have for daily evaporation, during dry season, $\frac{33}{100}$ of an inch.

1*st.* ***From Skaneateles Lake reservoir.***—Area of pond = 8,320 acres; area drainage basin = 90,000; available head = 6 feet. The water is discharged into the Erie canal at Jordan, through the natural channel of the outlet, ten miles in length. Measurements were made by S. H. Sweet, Esq., of its flow during the dry season of 1859, and the entire season of navigation, and it was found to deliver at the canal for 120 days, at the rate of, cubic feet per minute -- 7,520

$$\text{Ded. nat flow}=\left[\frac{(90,000\times43.560\times\frac{10\times0.28}{.12})-(8320\times43.560\times\frac{33-10}{12})}{120\times24\times60}\right]=1,288$$

Surplus of the canal, cubic feet per min ---------- 6,232

And the loss on this in passing seventeen miles through the canal to Montezuma (where it is discharged into Seneca river), is in proportion to the loss by filtration, waste and evaporation, on the whole amount passed in the canal, which, in 1859, = 173 cubic ft. per min. per mile, on 7,575 = 0.02281 loss on each cubic ft. passed per mile, which on above would be = 6,232 × 0.02281 × 17 = ---- 2,414

C. ft. per minute, total discharged into Seneca river from Skaneateles lake ---------------------------------- 3,818

2*d.* ***From Cazenovia Lake reservoir:***

Area of pond = 1778 acres; area drainage basin = 25,000; head $4\frac{1}{2}$ ft.

$$\text{Capacity}=\frac{1778\times43.560\times4\frac{1}{2}}{120\times24\times60}=\text{c. ft. per min}\ldots\ldots\ 2,017$$

$$+\ \text{nat. flow}=\left[\frac{(25,000\times43.560\times\frac{10\times0.28}{12})-(1778\times43.560\times\frac{33-10}{12})}{120\times24\times60}\right]=614$$

Total supply cubic ft. per min ------------------ 2,631

Deduct natural flow ------------------------ 614

Leaving a surplus at canal, cubic ft. per min ------------ 2,017

And the loss on this in passing twenty-one miles, from Chittenango to Mud lock on the Oswego canal (where it is discharged into Seneca river), being the same per c. ft. as Jordan level $= 0.02281 \times 2{,}017 \times 21 =$ c. ft. per min. 966

Total surplus from Cazenovia lake, c. ft. per min. = 1,051

3d. From Erieville reservoir:

Area of pond = 340 acres; drainage basin = 8,000; head = 21½ ft.

$$\text{Capacity} = \frac{340 \times 43.560 \times 21\tfrac{1}{2}}{120 \times 24 \times 60} = \text{c. ft. per min.} \ldots \quad 1{,}820$$

$$+ \text{ nat. flow} = \left[\frac{(8000 \times 43.560 \times \frac{10 \times 0.28}{12}) - (340 \times 43.560 \times \frac{33-10}{12})}{120 \times 24 \times 60}\right] = 310$$

Total supply cubic ft. per min = 2,130

Deduct natural flow, cubic ft. per min = 310

Leaving surplus at canal, cubic feet per min = 1,820

On which there is a loss in passing twenty-one miles through the canal from Chittenango to Mud lock (where it enters Seneca river), cubic ft. per min. $= 0.02281 \times 21 \times 1820 =$ 873

Total surplus from Erieville reservoir = 947

do do Cazenovia lake reservoir = 1,051

do do Skaneateles lake do = 3,818

Total surplus from reservoirs, cubic ft. per min. = 5,816

NOTE C.

The present supply of water to the canal, between Higginsville and Lodi, for July, August, September and October.

Under note B will be found the supply of Cazenovia lake and Erieville reservoirs, c. ft. per min. of both for 120 days = 4,761

Oneida creek, c. ft. per min., as per measurement July, 1859 = 1,500

Limestone creek, c. ft. per min., as per measurement of July, 1859 = 500

Butternut creek, c. ft. per min., as per measurement of July, 1859 = 500

Other sources, c. ft. per min., Pool's brook, Cowassalon c'k = 320

Total supply 1859, c. ft. per min = 7,581

By repairing structures on feeders an increased supply may be obtained for 1861, as follows: Oneida creek, 300; Limestone, 250; Butternut, 125; Pool's brook, 50; Cowassalon creek, 150 = 875

Total = 8,456

NOTE D.

The quantity of water required to supply the Oneida Lake canal, or the amount used.

This canal is supplied from the Erie canal at Higginsville, which is $33\frac{1}{2}$ miles from lock No. 47, and 24 miles from lock No. 46. It has seven locks, and an aggregate fall of 58 feet to Oneida lake. The canal proper is $3\frac{3}{4}$ miles; creek navigation, $2\frac{1}{4}$. It became the property of the State under an act dated 11th May, 1840, which authorized the Canal Commissioners "to purchase the interest in the Oneida Lake canal and feeder, and the navigation of Fish creek." Stock to the amount of $50,000 was issued for the same, April 12, 1841.

A large quantity of water has been wasted on this canal the past ten years, caused by the leakage through old locks out of repair, and the quantity used will cover the amount required for contemplated new locks. It is believed that 20 lockages per day will be an ample estimate for the past and future trade of this canal, requiring for lockage water

requiring for lockage water	166	c. ft.	per min.
Leakage through gates	650	"	"
Add 25 per ct. for flushing boats out of lock,	41	"	"
Evaporation on $3\frac{3}{4}$ miles, $\frac{1}{3}$ inch from surface,	11	"	"
Filtration on $3\frac{3}{4}$ miles, $62\frac{1}{2}$ cub. ft. per mile,	233	"	"
Total c. ft. required and used on Oneida canal	1,101		

Of which 820 cubic ft. per min. are discharged into Oneida lake.

NOTE E.

The quantity of water delivered at Syracuse from the west end of the "long level;" lockage, leakage and waste at No. 47, Lodi.

1st. Leakage.—Experiments were made in 1848, on locks 60 and 61, built in 1840, and leaked as follows:

No. 60, single, 10 feet lift	1,344	cub. feet	per min.
No. 61, " 8 "	1,220	"	"
Others, " varying from 450 to	1,100	"	"
Lock No. 47, $10\frac{1}{2}$ feet lift: the gates are old and out of repair. It is deemed proper to allow for this lock, leakage,	2,750	"	"

2d. Lockage water, with total discharge.—Cubic contents, 21,750 feet; two locksful to pass three boats; leakage per minute, 2,750; waste, $\frac{1}{4}$ of lockage water. Using the foregoing as a basis, the *total quantity* of water, *discharged* through the lock *upon* the *Syracuse level*, was, at different periods:

July to Oct., incl.,	1859,	daily avg.	101	lock'gs,	= 4,021 c. ft. per m.
Avg. for season,	1859,	"	93	"	= 3,921 "
Largest month,	1859,	"	118	"	= 4,172 "
" day,	1859,	"	177	"	= 4,917 "
October 6th,	1860,	"	213	"	= 5,430 "

It is believed safe for the future trade of the canal, to provide water sufficient for 300 lockages, requiring 200 locksful of water per day. This will make the quantity passed upon the Syracuse level, from west end of long level: lockage-

water $= \frac{200 \times 21.750}{24 \times 60}$ .... =3,020 c. ft. per m.

Add $\frac{1}{4}$ for waste through culvert and flushing = 755 " "

Leakage through lock gates, 10½ feet lift.... =2,750 " "

Total cubic feet required per minute.... =6,525

Greatest quantity used in any one day, 1859. =4,917 " "

" " " " July to Nov., 1859. =4,021 " "

" " " Oct. 6th, 1860...... =5,430 " "

Note F.

Deficiency between Higginsville and Lodi with present supply and trade, and the distance actually supplied east from Lock No. 47.

Data:—

Under note C.	will be found the supply for 1859, c. ft. per m.	7,581
Under note C.	will be found supply for 1861, c. ft. per min.	8,456
E.	quantity passed for periods of lockages, at No. 47.	
H.	loss c. ft. per min. per mile..	198.17
E.	quantity required at lock 47 for 300 lockages..........	6.525

The following tabular statement includes that portion between lock No. 47 and Higginsville, and not the supply of Oneida Lake canal:

Daily lockages at different periods.	Quantities discharg'd into Syracuse level.	Present supply between Higginsville and Lock No. 47.	Loss per mile per minute.	Formula.	Actual distance supplied east of Lock No. 47.	Distance from latter point to Higginsville.	Deficiency between Lock No. 47 and Higginsville.
	c. ft. per min.	c. ft. per min.	c. ft. per min.				c. ft. per min.
93, av. for season 1859 ..	3,921	7,581	198.17	$\frac{7,581-3,921}{198.17}$	18 2-3	14 5-6	2,940
101, July to Nov., 1859 ..	4,021	7,581	198.17	$\frac{7,581-4,021}{198.17}$	18	15 1-2	3,072
118, largest month, 1859..	4,172	7,581	198.17	$\frac{7,581-4,172}{198.17}$	17 1-8	16 3-8	3,245
177, largest day, 1859....	4,917	7,581	198.17	$\frac{7,581-4,917}{198.17}$	13 1-3	20 1-6	3,996
213, Oct. 6, 1860	5,430	7,581	198.17	$\frac{7,581-5,430}{198.17}$	10 3-4	22 3-4	4,508
300, for future capacity ..	6,525	7,581	198.17	$\frac{7,581-6,525}{198.17}$	5 1-3	28 1-6	5,598
With De Ruyter to present supply	6,525	11,472	198.17	$\frac{11,472-6,525}{198.17}$	24 1-2	9	1,707
As per Van Vleck's quantities, reported Dec. 5, 1859, with supply from De Ruyter reservoir added to his present supply	6,670	13,150	200.00	$\frac{13,150-6,670}{200}$	32 4-10	1 1-10	220

Note G.

The supply that can be received from the proposed De Ruyter reservoir for 100 *days.*

1*st. Description.*—Is located in the extreme southwest corner of Madison county, town of De Ruyter, on the head waters of Limestone creek, and distant from the canal about 25 miles. There are a great many extensive mills upon the proposed outlet of this reservoir, which, with the present supply from the creek, are only able to operate about three-fourths of a year—a very objectionable feature to its being made the outlet of a reservoir of such small capacity, as experience has demonstrated almost fatally on the Jordan level during the dryest period—witholding the water during the night by mill owners, for a strong head during the day.

2*d. Data.*—Area of pond = 626 acres; drainage basin, 12,000 acres; available head, 18½ feet; fall of rain, eight inches; ratio of drainage to fall of rain = 0.28; evaporation = 24 inches for 100 days.

Capacity $= \frac{626\times43.560\times18\frac{1}{2}}{100\times24\times60}$ .... 3,472 c. ft. per m.

Add natural flow:=

$$\left[\frac{(12{,}000\times 43.560\times\frac{8\times 0.28}{12})-(626\times 43.560\times\frac{24-8}{12})}{100\times 24\times 60}\right]= 420 \text{ c. ft. per. m.}$$

Total supply for 100 days.......... = 3,891 " "

Note H.

The loss by evaporation, filtration and waste on a mile of enlarged canal, per minute.

The quantities as given for the old size of canal were determined by experiments:

Evaporation, old canal, 3c. ft: enl'gd canal, $\frac{1}{3}$ in. from surface = 14.25

Filtration, old canal, $63\frac{1}{2}$ cubic feet: enlarged canal—

$(\frac{4}{3}4 \surd 4 + 28 \surd 4) : (\frac{4}{3}7 \surd 7 + 52\frac{1}{2} \surd 7) :: 1 : 2.45$ the old. =155.57

Waste, old canal, 9 cubic feet: enlarged canal—

$(42 + 26)^{\frac{4}{2}} : (70 + 52\frac{1}{2})^{\frac{7}{2}} :: 1 : 3.15$ the old............. = 28.35

Loss per mile, exclusive of lockages, cubic feet per min.=198.17

Lockages and total loss between lock 47 and Higginsville=

$33\frac{1}{2} \times 198.17 + 6.525$.............................. =13.179

Total supply (see Note C.)........................... = 7.581

Total deficiency between lock 47 and Higginsville, cubic feet per minute.............................. = 5.598

Note I.

Present supply between Higginsville and Lock No. 39 *at Little Falls*, 49 *miles.*

From Mohawk river at Rome.—As per measurements made July, 1859, by Wm. B. Taylor, Esq...............	10,500 cub. ft. per min.
From Black River canal.—Lock ten feet lift, ten lockages per day = $\frac{10\times 15000}{24\times 60}$	= 104 " "
Leakage through gates	= 450 " "
Average feeding through $\frac{1}{2}$ valve of one opening.........................	= 740 " "
From Wood creek.—As per measurements made during dry season, 1854.	= 125 " "
From Butts' creek.—As per measurements made during dry season, 1854,	=1,400 " "

From Chenango canal.—Five feet lift first lock, eight lockages per day = $\frac{11\times8000}{24\times60}$ =	61	c. feet	per min.
Leakage through gates =	350	"	"
Average feeding through ½ valve, one opening =	500	"	"
From Ilion creek.—As per measurements made Aug., 1856 =	800	"	"
Total supply =	15,030	"	"

Henry Van Vleck's report, dated December 5th, 1860, made to the State, gave the above supply at cubic feet per min. 14,950.

Note J.

Deficiency between Higginsville and lock No. 39 *at Little Falls, for a trade of* 300 *lockages per day, and Oneida Lake canal for a trade of* 20 *lockages per day.*

Quantity required for Oneida lake canal, given under note D =	1,101	c. ft.	per min.
Utica weigh lock, 70 lockages per day and leakage =	1,375	"	"
Lockage water and leakage at No. 39, 10½ feet lift (see note E) =	6,525	"	"
Loss on 49 miles by evaporation, filtration and waste (see note H.) =	9,800	"	"
Total quantity used =	18,801	"	"
Total quantity supplied (see note I.) =	15,030	"	"
Total deficiency =	3,771	"	"

Note K.

With the present supply between locks 47 *and* 39 *and a trade of* 300 *lockages (requiring* 200 *locksful) per day, how far east of the former and west of the latter can the canal be supplied? the length of unsupplied portion and amount required to supply the same.*

Data:—

Present supply between lock 47 and Higginsville (see note C.) =	7,581	c. ft.	per min.
Quantity requir lock 47 (see note E) =	6,525	"	"

Quantity required per mile (see note) = 198.17 c. feet per min.
Present supply between lock 39 and Higginsville (see note I) ---------- = 15,030 " "
Quantity required to pass lock 39 (see note J) ---------- = 6,525 " "
Quantity required for Utica weigh lock (see note J) ---------- = 1,375 " "
Quantity required per mile (see note J) = 200 " "

Then the distance supplied east lock 47 $= \left(\frac{7{,}581 - 6{,}525}{198.17}\right) = 5\frac{1}{3}$ miles.

Dist'ce supplied west lock 39 $= \left(\frac{15{,}030 - 6{,}525 + 1{,}375 + 1{,}101}{200}\right) = 30$ "

Distance unsupplied (from $18\frac{5}{6}$ miles east to $28\frac{1}{6}$ west of Higginsville ---------- = 47 "

Quantity required for unsupplied portion, including Oneida Lake canal, 9,369 cubic feet per minute.

NOTE K.

The drainage basin of the Oswego river exceeds 7,500 square miles, equal to one-sixth the area of this State, and embracing the important lakes of Cayuga, Seneca, Canandaigua, Crooked, Onondaga, Cazenovia, Oneida, Skaneateles, and four smaller, Owasco, Cross, Otter and Fish lakes. Its extent, east and west, on the Erie canal, is from a few miles west of Rome to the west line of Wayne county, and extreme southern limits to within ten miles of Elmira.

Mr. Richmond reports the increased head to Cayuga lake and Skaneateles Lake reservoirs by the State of two feet on each. This will make the surplus from reservoirs as follows:

	c. ft. per min.	
Skaneateles lake, proportion for two feet ----------	2,507	
Deduct loss in passing 17 miles through canal, same percentage of loss as former ----------	965	
		1,542
Cazenovia lake, proportion for two feet ----------	1,120	
Deduct loss in passing 21 miles through canal ----------	537	
		583
Erieville same ----------		947
		3,072

CHAMPLAIN CANAL.

At many of the locks on this canal there are no sluices for the passage of water for the maintenance of the required depth on the several levels. This frequently occasions much difficulty in keeping them to a proper and uniform height. It should be remedied by the immediate construction of sluices at each of the locks which do not now have the benefit of them.

The Broad Street bridge, in the village of Waterford, has long been in a dangerous condition, not having been in use for two months past. Its reconstruction has been delayed in consequence of the effort now being made for its replacement by a substantial superstructure of iron.

The sluices around the locks on the Glens Falls feeder are all built with stone arches, but nearly all have failed, in consequence of the foundations having been undermined. In some instances new wooden sluices have been constructed above the old arch, and there are now remaining three that will require the same repairs to insure their security.

All of the important dams on this canal ought to be rebuilt. They are three in number, and located, one across the Mohawk at Cohoes, one across the Hudson, at Fort Miller bridge, and the other at the head of the Glens Falls feeder. They were originally built of wood, and should be reconstructed of stone. As all of them are on rock foundations, they could be made permanent structures.

As soon as the necessary funds can be obtained, the Fort Miller lock should be rebuilt on the same location. It is now in a very precarious condition, and its immediate reconstruction merits the attention of your honorable body to provide an appropriation therefor.

BLACK RIVER CANAL.

Much inconvenience has been experienced by the formation of troublesome bars at the intersection of the small streams with the canal. Provision should be made for changing the channels of the creeks, which, in many instances, could be effected with a small expenditure, and the deposit of *débris* be avoided.

At a number of places the Lansing Kill is washing away the foot of the bank, which ought to be protected by a rip rap wall, to prevent extended injury.

At the head of lock forty-three a very serious slide has occurred on the outward side of the high towing path embankment, extending down to the bed of the stream flowing at its base, making a descent of one hundred feet from the towing path surface. It is being protected, at the foot, by a heavy rip rap wall, which it is hoped will render it permanent.

Lock number sixty has become partially undermined, and will require its foundation concreted prior to the opening of navigation for the ensuing season.

I would recommend that the dam across Black river, at Lyons Falls, be raised one foot in the centre, leaving a width of fifty feet next to each abutment, in order that the water which passes at ordinary times may be conducted by either side for the benefit of the hydraulic power at this point. This would prevent the appraisal of the heavy damages which of necessity would otherwise be incurred.

IMPROVEMENT OF BLACK RIVER.

There will be some further improvements required to perfect the navigation on Black river, as several bars are already formed below the lock and dam, now in progress of building, near Beach's bridge. As an object of temporary relief for the insufficient depth of water often experienced by navigators, I would suggest that flash boards, one foot high, be placed upon the dam at Carthage during the summer season, or low water. This would have a tendency to raise the water to some extent, nearly, if not quite, as far as the new lock and dam, as I am informed by Mr. Jenne, Division engineer, that the average fall on the river below is not over an inch and one-third per mile. The contractor should then be required to employ his dredge on the bars above mentioned.

SPECIAL LAWS.

Act chap. 493, Laws of 1866, authorized the Canal Board "to construct or cause to be constructed and maintained, at the expense of the State, a suitable highway bridge over the navigable waters of Black River improvement, now used as a State canal, between the towns of Denmark and Croghan, at Parker's ferry, in the county of Lewis, at a point to be designated by said Board, if, in the opinion of said Board, the State ought to build said bridge, to be paid from any money appropriated for ordinary or extraordinary repairs of the canals, the cost not to exceed $7,000."

On the twelfth day of June last an estimate amounting to $18,400 was made and presented to the Canal Board, of the cost of constructing a suitable bridge at this point, on which the Board passed the following resolution:

"*Resolved*, That the Canal Board, having ascertained by the report of the Division engineer of the Eastern division, that the sum of $7,000, appropriated to build a road bridge across the Black river, between the towns of Denmark and Croghan, in the county of Lewis, by act, chap. 493, Laws of 1866, passed April 10, 1866, is insufficient for that purpose, by the amount of at least $11,400—deem it not necessary to inquire into the obligation of the State to build said bridge, and they therefore, for the reason above stated, decline to authorize the building of the same."

Act, chap. 618, Laws of 1866, authorized the Canal Commissioner in charge of the Eastern Division, "to cause to be constructed and maintained a substantial public road bridge over the Erie canal, in the eastern part of the village of Ilion, to be paid for from the fund appropriated for extraordinary repairs on the Eastern Division." No action has been taken on the construction of this bridge, for the reason that all the appropriations for extraordinary repairs were made for a specific object, under act, chap. 219, Laws of 1866, consequently no funds could be provided for the construction of the work.

Act, chap. 807, Laws of 1866, authorized the construction of an iron bridge over the Erie canal, at Columbia street, in the village of Cohoes, in place of the old wooden structure, which had fallen down. The bridge, however, has been rebuilt of wood (instead of iron), none of the extraordinary repair fund being available, as the appropriation for ordinary repairs prohibited any of the money being used for what is termed a "change of plan."

Act, chap. 875, Laws of 1866, authorized the Canal Commissioners to open the covered stone drain along the berme bank of the Erie canal, from north side of Earl street, in the village of West Troy, to the next culvert south of said street; or to construct a new drain along the west side of the McAdam turnpike from Earl street to said culvert, if, in the opinion of said Commissioners, the construction of the new drain would be for the best interests of the State, the cost of the work not to exceed $500." Nothing has been performed in pursuance of the above, for the reason that the law does not make an appropriation of the money from any particular fund, and also specifies " the drain along the berme bank of the canal," when in reality the only one at this point is located on the towing path side.

Respectfully submitted,

R. C. DORN,
Canal Commissioner.

FINANCIAL STATEMENTS

ACCOMPANYING THE ANNUAL REPORT OF THE CANAL COMMISSIONER IN CHARGE OF THE EASTERN DIVISION OF THE NEW YORK STATE CANALS, FOR THE FISCAL YEAR ENDING SEPTEMBER 30, 1866.

STATEMENT NO. 1, *showing the expenditures of Hon. Wm. I. Skinner, late Canal Commissioner, for the quarter ending December* 31, 1865.

ERIE CANAL.

Enlargement	$7,542 85	
Repairs per contract	39,309 47	
" not embraced by contract	4,405 50	
" ordinary	8.560 84	
" extraordinary	21,699 72	
		$81,518 38

CHAMPLAIN CANAL.

Enlargement	$2,923 83	
Improvement	13.580 72	
Repairs per contract	13,955 01	
" not embraced by contract	1,209 55	
" ordinary	706 50	
" extraordinary	11,502 00	
		$43,877 61

BLACK RIVER CANAL.

Enlargement	$1.823 00	
Improvement	1.969 85	
Repairs per contract	9.121 29	
" not embraced by contract	3.926 75	
" ordinary	3.992 48	
		$20,833 37

STATEMENT No. 2.—*Showing the expenditures of the present Commissioner for the balance of the fiscal year ending September* 30, 1866.

ERIE CANAL.

SECTION No. 1.

For repairs, per contract	$53,264 55
Constructing abutments to road bridge at Cohoes	5,366 00
*Miscellaneous payments	1,185 67
	$59,816 22

Extraordinary Repairs.

Removal of benches and slope wall between locks 1 and 2	$18,158 62
Concreting and replanking bottom of lock 4	2,984 22
	$21,142 84

Improvement Albany Basin (Act chap. 503, *Laws of* 1866.)

Payments by draft on Comptroller	$12,456 70

Recapitulation.

Ordinary repairs	$59,816 22
Extraordinary repairs	21,142 84
Basin improvement	12,456 70
Total	$93,415 76

SECTION No. 2.

For repairs, as per contract	$11,309 31
" of breach on Four mile level, in excess of $5,000 paid by contractor	13,939 00
For miscellaneous payments	2,178 08
	$27,426 39

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* The three Divisions alternate in paying the expenses of the Contracting Board and Board of Canal Commissioners, together with the general miscellaneous expense of printing, stationery, &c. The Eastern Division has been chargeable with such expenses during the past fiscal year, and have been equally distributed among the five sections of the Erie canal, as "miscellaneous payments."

Extraordinary Repairs.

Construction of stone dam at Rexford Flats	$4,533 00

Enlargement.

Act chap. 734, Laws of 1857	$388 07
Total	$32,347 46

SECTION NO. 3.

Repairs, per contract	$13,214 26
Miscellaneous payments	1,772 87
Awards of Canal Board Dec. 14, 1865	4,884 48
	$19,871 61

Enlargement.

For payment in pursuance of act chap. 734, Laws of 1857	141 50
Total	$20,013 11

SECTION NO. 4.

For repairs, per contract	$17,976 48
For miscellaneous payments	1,558 23
	$19,534 71

Extraordinary Repairs.

Removal of wall benches and raising slope wall west of Castle creek	3,702 70
Removal of wall benches and raising slope wall between Ilion and lock 45	564 00
Total	$23,801 41

SECTION NO. 5.

For repairs, as per contract	$9,450 00
For repairs of sidewalks to Genesee street bridge, Utica	353 06
For cutting a new channel through big basin, Utica	190 00
For miscellaneous payments	1,194 87
	$11,187 93

Extraordinary Repairs.

Constructing docking at Rome	1,779 00

Enlargement.

Payment in pursuance of act, chap. 734, Laws of 1857	$1,410 24
Total	$14,377 17

For general payment of Engineer Department	$4,000 00

CHAMPLAIN CANAL.

SECTION NO. 1.

For repairs, per contract	$20,317 50
For taking down and rebuilding two of the piers of the towing path bridge across the Mohawk river at Cohoes	4,259 94
	$24,577 44

SECTION NO. 2.

For repairs, per contract	$15,249 49
For extra braces and needle beams in Moses' Kill aqueduct	286 64
	$15,536 13

SECTION NO. 3.

For repairs, per contract	$7,650 00
For repairs of damages to Wood creek, by freshet of 1863	2,018 66
	$9,668 66

IMPROVEMENT OF CHAMPLAIN CANAL (ACT, CHAP. 186, LAWS OF 1864).

Improvement, construction	$103,350 11
Engineering	8,000 00
	$111,350 11

BLACK RIVER CANAL.

SECTION NO. 1.

For repairs, per contract	$8,336 06
For publishing notices to contractors	89 77
	$8,425 83

SECTION No. 2.

For repairs, per contract	$5,097 97
For construction of Woodhull reservoir	469 90
For publishing notices to contractors	89 78
	$5,657 65

SECTION No. 3.

For repairs, per contract	$6,215 67

IMPROVEMENT BLACK RIVER.

Constructing of lock and dam above Beach's bridge	$12,995 00

STATEMENT No. 3,

Showing the character of work, estimated cost, amount of work done during fiscal year, whole amount done, and amount remaining to be done, under contracts existing during the fiscal year ending September 30, 1866, *on the Eastern division of the New York State canals.*

CHARACTER OF WORK.	Estimated cost.	Am't done during fiscal year.	Whole amount done.	Amount remaining to be done.
Repairs of the Erie Canal.				
Abutments and approaches of White street bridge, Cohoes....	$11,788 00	$8,140 00	$8,140 00	$3,648 00
Superstructure do do	6,612 00	....	....	6,612 00
Total	$18,400 00	$8,140 00	$8,140 00	$10,260 00
Extraordinary Repairs, Erie Canal.				
Removal of benches and slope wall and the construction of vertical and slope wall between locks Nos. 1 and 2	$29,475 34	$5,795 34	$29,475 34	Settled.
Allowance by Canal Board under act, chap. 499, Laws of 1865.	23,133 28	5,973 28	23,133 28	do
Stone dam across Mohawk river at Rexford Flats............	23,000 00	5,710 00	19,100 00	$3,900 00
Allowance by Canal Board under act, chap. 491, Laws of 1865.	23,000 00	5,710 00	19,100 00	3,900 00
Total	$98,608 62	23,188 62	$90,808 62	$7,800 00
Champlain Canal, Ordinary Repairs.				
Rebuilding Moses Kill lock of enlarged size (cost of constructing on present size)	$27,490 00	....	....	$27,490 00

STATEMENT No. 3—Continued.

CHARACTER OF WORK.	Estimated cost.	Am't done during fiscal year.	Whole amount done.	Amount remaining to be done.
Improvement Champlain Canal.				
Improvement at Bassett's lock	$7,075 31	$5,075 31	$7,075 31	Settled.
Sluice around guard lock, Saratoga dam	3,925 49	1,225 49	3,925 49	do
Tree dam on Wood creek	19,445 07	6,425 07	19,445 07	do
Improvement of Waterford level	9,128 00	5,300 00	5,300 00	$3,828 00
do from first lock north of Waterford to Hewett's lock	24,356 80	....	....	24,356 80
do do Hewett's lock to Becker's lock	21,181 00	480 00	480 00	20,701 00
do section No. 1 of sixteen mile level	20,445 00	12,540 00	12,540 00	7,905 00
do do No. 2 do do	17,678 00	7,420 00	7,420 00	10,258 00
do do No. 3 do do	15,387 00	7,500 00	7,500 00	7,887 00
do do No. 4 do do	25,371 00	6,920 00	6,920 00	18,451 00
do from Saratoga lock to Fort Miller lock	18,924 00	....	....	18,924 00
do do Fort Miller lock to Moses Kill lock	16,401 60	340 00	340 00	16,061 60
do do Moses Kill lock to Fort Edward lock	32,038 00	720 00	720 00	31,318 00
do section No. 1 of twelve mile level	13,456 50	4,500 00	4,500 00	8,956 50
do do No. 2 do do	18,046 00	1,200 00	1,200 00	16,846 00
do do No. 3 do do	15,883 00	2,980 00	2,980 00	12,903 00
Raising towing path on Wood creek	16,235 50	8,980 00	8,980 00	7,255 50
Stone dam on Wood creek	7,077 50	6,200 00	6,200 00	877 50
Improvement Whitehall level	35,850 00	16,500 00	16,500 00	19,350 00
do Glens Falls feeder	17,586 50	....	....	17,586 50

Rebuilding Moses Kill lock (difference between present size and enlarged size)	21,300 00	660 00	660 00	20,640 00
Total	375,791 27	94,965 87	112,685 87	263,105 40
Improvement of Black River.				
Lock and dam three miles above Beach's bridge	$58,000 00	17,820 00	$17,820 00	$40,180 00
Improvement of Albany Basin.				
Enlarging openings at north and south ends	$40,000 00	19,960 00	$19,960 00	$20,040 00

STATEMENT No. 4, *showing character of work, estimated cost, and amount paid on work not under contract, on the Eastern Division of the New York canals, from October 1st, 1865, to September 30th, 1866, as performed under the supervision of the Engineer Department.*

Character of work.	Estimated cost.	Amount paid.
Erie Canal—Miscellaneous Repairs.		
Repairs of piers and trunk of lower Mohawk aqueduct	$5,150 94	$5,150 94
Repairing berme bank and foundation of waste-weir at Vischer's ferry	300 00	300 00
Rebuilding trunk to upper Mohawk aqueduct	35,712 07	35,712 07
Rebuilding docking for 1½ miles west of Schenectady	48,000 00	36,874 61
Cutting a new channel through big basin at Utica	190 00	190 00
Repairs of weigh lock and scales and inserting a new scale beam at Utica	4,009 36	4,009 36
Repairs of sidewalk to Genesee street bridge, Utica	353 06	353 06
Total	$93,715 43	$82,590 04
Extraordinary Repairs.		
Concreting foundation of lock No. 1	$9,126 22	$5,369 88
do do 4	2,924 22	2,924 22
do do 7	2,456 48	2,456 48
do do 14	2,593 12	2,593 12
do do 17	1,358 82	1,358 82
do do 20	1,392 86	1,392 86
do do 22	2,456 28	2,456 28
do do 23	1,383 90	1,383 90
do do 26	2,171 23	2,171 23
Removing wall bench and raising slope wall west of Castle creek	3,702 70	3,702 70
Improving Rocky Rift feeder	3,000 00	1,339 42
Removing wall bench from Mohawk to Ilion	564 00	564 00
Excavating berme bank at City Mill, Utica	640 00	441 47
Constructing docking at Rome	1,779 00	1,779 00
Total	$35,548 83	$29,933 38

Champlain Canal—Miscellaneous Repairs.

Taking down and rebuilding two piers of the towing path bridge across the Mohawk river at Cohoes	$8,566 44	$4,259 94
Taking up and relaying pier and bracing trunk to Moses' Kill aqueduct	258 64	258 64
Total	$8,825 08	$4,518 58

Improvement Champlain Canal.

Improving canal from a point 1¼ miles north of Hewett's lock to Mechanicsville	$5,840 00	$5,840 00
Improving canal between first two bridges north of Moses' Kill aqueduct	4,531 83	4,531 83
Improving Glens Falls feeder (deducted from appropriation for dredging)	5,250 00	5,250 00
Improving Waterford side cut	13,535 96	13,535 96
Improving at Haveland's waste-weir on Glens Falls feeder	3,262 00	3,262 00
Improving at Haveland's bridge on Glens Falls feeder	5,375 00	5,375 00
Improving at Sherman's bridge on Glen's Falls feeder	2,170 00	2,170 00
Improving at Fitzgerald's bridge on canal	770 00	770 00
Completion of stopping leaks in Glens Falls feeder	3,040 00	3,040 00
Completion of section No. 1 stopping leaks in Glens Falls feeder	22,530 00	11,335 39
Rebuilding road bridge at Glens Falls	3,875 00	875 00
Building road bridge at Whitehall, under act, chap. 203, Laws of 1866	7,322 03	7,322 03
Work with dredge	4,750 00	1,608 25
Total	$82,251 82	$64,915 46

Black River Canal—Extraordinary Repairs.

Constructing pier at Otter Creek lock, on Black river	$6,500 00	....

Grand total—Statement No. 2	$226,841 16	$181,957 46
Statement No. 1	618,289 89	164,074 49
Both statements	$845,131 05	$346,031 95

STATEMENT No. 5, *showing the payments, by draft and certificates on the Auditor, for the awards of the Canal Appraisers.*

Erie enlargement	$15,000 17
Champlain	17,256 95
Black River	4,888 83
	$37,145 95

RECAPITULATION.

ERIE CANAL.

Section No. 1	$80,959 06	
Section No. 2	31,959 39	
Section No. 3	19,871 61	
Section No. 4	23,801 41	
Section No. 5	12,966 93	
		$169,558 40
Improvement of Albany basin (drafts on Comptroller)		12,456 70
Awards of Canal Appraisers		15,000 17
Erie enlargement		1,939 81
Engineering		4,000 00
		$202,955 08

CHAMPLAIN CANAL.

Section No. 1	$24,577 44	
Section No. 2	15,536 13	
Section No. 3	9,668 66	
		$49,782 23
Improvement, act, chap, 186, Laws of 1864		111,350 11
Awards of Canal Appraisers		17,256 95
		$178,389 29

BLACK RIVER CANAL.

Section No. 1	$8,425 83	
Section No. 2	5,657 65	
Section No. 3	6,215 67	
		$20,299 15
Improvement		12,995 00
Awards of Canal Appraisers		4,888 83
		$38,182 98

SUMMARY.

ERIE CANAL.

Total expenditure by Comm'r Skinner	$81,518 38	
do do Dorn ..	190,498 38	
		$272,016 76

CHAMPLAIN CANAL.

Total expenditure by Comm'r Skinner	$43,877 61	
do do Dorn ..	178,389 29	
		222,266 90

BLACK RIVER CANAL.

Total expenditure by Comm'r Skinner	$20,833 37	
do do Dorn ..	38,182 98	
		59,016 35
		$553,300 01

Expended from the general fund, by draft on Comptroller, for the improvement of Albany basin, under act, chap. 503, Laws of 1866......	$12,456 70

MIDDLE DIVISION.

Canal Commissioner's Office,
Syracuse, *Oct.* 1*st*, 1866.

The Commissioner in charge of the Middle Division respectfully presents the

ANNUAL REPORT

for the fiscal year ending September 30th, 1866, showing the condition of the canals and their structures; the cost for ordinary and extraordinary repairs; the amounts expended by order of the Legislature; the amount from the "Miscellaneous Fund"; for land damages awarded by Canal Apprisers; for awards made by the Canal Board under special enactments, together with some suggestions, to which the attention of the Legislature is invited.

The following is a summary of the expenses—a full detail of which will be found in the Appendix, under appropriate heads:

The total expenditures upon the Middle Division during the fiscal year ending September 30, and charged to either the ordinary or extraordinary repair accounts, were		$528,706 92
Of which amount there was paid for repairs of damages caused by the freshet of March, 1865	$44,614 48	
And for work done and awards made pursuant to special laws	167,748 78	
And for expenditures by order of the Canal Board	119,431 11	
		331,794 37
Amount expended for ordinary repairs		$196,912 55

Amount expended for ordinary repairs in 1865	$311,124	75
Amount expended for ordinary repairs in 1866, as above	196,912	55
Am't so expended in 1866 less than in 1865 by	$114,212	20

The total payments on account of the extension of the Chenango canal, were	$220,409	24

Drafts have been drawn pursuant to chap. 326, Laws of 1865, for the improvement at Corning, to the amount of	$15,083	00

Drafts or certificates of indebtedness have been drawn on account of awards made by the Canal Appraisers, to the amount of	$148,590	72

Detailed expenditures during the fiscal year, under special laws—above mentioned in total.

For berme bank in Oswego river, chap. 395, Laws of 1865	$38,505	00
For weigh-lock at Oswego, chap. 298, Laws of 1864,	9,248	00
For stone dam at Phœnix, chap. 395, Laws of 1865,	19,930	00
For stone dam at Oswego Falls, chap. 470, Laws of 1865	9,293	74
For guard gate at Baldwinsville, chap. 219, Laws of 1866	10,000	00
For interest, chap. 734, Laws of 1857	1,731	48
For Snyder's patent draw bridge at Cross street, Elmira, chap. 473, Laws of 1864	917	68
For Snyder's patent draw bridge at Fifth street, Elmira, chap. 416, Laws of 1865	2,176	62
For improvement at Corning, chap. 326, Laws of 1865	30,634	00
For allowance by Canal Board, by chap. 722, Laws of 1865	23,695	13
For allowance by Canal Board, by chap. 720. Laws of 1865	13,416	81
For highway bridge in the town of Corning, chap. 289, Laws of 1865	919	44

For final settlement of contracts for reconstructing locks on the Oneida Lake canal, chap. 626, Laws of 1865	$3,612 25
For repairs of embankment to Eaton brook reservoir, chap. 593, Laws of 1865	2,738 11
For dredging Ithaca inlet, chap. 748, Laws of 1866,	930 52
Total	$167,748 78

The foregoing exhibit shows the expenses for the "ordinary repairs" upon the division to be $114,212.20 less than in 1865, and the whole cost for ordinary and extraordinary to be $155,840.73 less than last year.

The navigation of the three hundred and twenty-five miles of canal on this division, the Commissioner confidently asserts, never was better than during the season just passed. There has been no serious interruption, and scarcely a hindrance to navigation, from the opening to the closing of the fiscal year. The repair contractors have, as a general thing, done more than the usual amount of repair work. In some instances, where they have neglected to do the work directed, it has been done by the canal authorities, and the cost thereof charged to and paid by the contractor, as provided by his contract.

In this connection the Commissioner deems it a pleasant duty to commend the subordinate canal officers on his division for their uniform faithfulness and fidelity in the discharge of the duties and responsibilities of their several positions. Generally they have had an *experience* of several years, which has greatly aided them, while familiarity with canal regulations and the practical workings of canal business has enabled them, by watchfulness, to avert danger from breaks and other casualties, and to greatly facilitate the interests of the State as well as those engaged in business upon its canals. A canal office cannot be a *sinecure*, and the incumbent, in any position, high or low, has duties, and enough of them, to perform, requiring his constant, his undivided attention. Hence, the practice of removing a competent, faithful and *experienced* subordinate canal officer, of any grade, however low and common his duties, only because "he has held the position for a number of years," and substituting a new, *inexperienced* man — honest and faithful though he may be, in the place, is a bad policy and detrimental to the interests of the State. It is not such a policy as any safe, prudent business man or corporation would adopt in his or their business operations.

The work of reconstructing the old, dilapidated wooden dams on the Oswego river, of stone masonry, as directed by the Legislature, has all been put under contract, except the Minnetto dam and the High dam; the former will probably be put under contract before the close of navigation. The High dam, swept away by the March freshet of 1865, and then rebuilt in great haste and at great expense, is yet in good condition and may stand safely for many years; but as it rests upon an earth foundation it cannot be said to be entirely reliable. Whenever it shall be rebuilt, or a new one constructed to take its place, the location should be changed to a point a few chains below, where a solid rock foundation can be obtained. When the dams are all completed and the berme bank in the river finished, according to the present plans, the Oswego canal will be so fully provided for, in its supply of water and thoroughness of construction, that no danger of interruption to its navigation can be reasonably apprehended.

IMPROVEMENT OF THE HARBOR AT WATKINS.

The annual increase of business on the Chemung canal, in the transportation of coal, plainly foreshadows the importance of making some improvements in the harbor at the head of Seneca lake, in order to give the requisite facilities for making up the tows of boats by steamer to the head of the Cayuga and Seneca canal at Geneva. The coal trade is an important one, and is daily increasing in magnitude. From this trade the State derives a large revenue in tolls, a revenue which must increase for many years to come. The day cannot be far distant when the increase in the coal traffic on this route will imperiously demand an enlargement of the Chemung canal, to accommodate the swelling trade, or private enterprise, seizing the opportunity the State might hold, will defy competition and take the trade by rail, while the State will not only lose what it could have saved, but sacrifice what it now owns in that canal, and which will then be worthless. Plans and estimates for the Harbor Improvement at Watkins have been made heretofore, have been approved by the Canal Commissioners, and submitted to the Legislature, whose attention is again invited to this subject.

ONEIDA LAKE CANAL.

The Commissioner begs leave for the last time, to invite the attention of the Legislature to the importance of opening this canal, or providing some way by which the business of that section of the State can be done, without the ruinous loss which has attended it for the last five years. It cannot be denied, that the State has practically repudiated its constitutional obligation, in reference to this lateral canal, since the day the canal was disabled by the State authorities. The last Legislature passed a bill authorizing the opening of the present canal, or the construction of a new one, if in the opinion of the Canal Board, that was more expedient than to open the present channel. The bill was vetoed by His Excellency the Governor, upon the ground that the proposed project did not, in the opinion of the Governor, come within the scope of the "Constitutional obligation" of the State. So far as the construction of a *new* canal was concerned, the conclusion of His Excellency was doubtless correct; but that the State is constitutionally bound to open the old canal there is and can be no doubt. If, then, a new and better line can be constructed, at a cost not largely exceeding the expense of reconstructing the old one, it is submitted that sound policy and economy would justify such a course.

CHENANGO CANAL.

Work upon the extension of the Chenango canal has progressed satisfactorily, considering the embarrassments and difficulties consequent upon the high price of labor and supplies, and the scarcity of laborers. The first ten sections that were put under contract are nearly completed, while the sections embraced in the contracts, made pursuant to the second and third letting, (of ten sections each) are generally in an equally advanced condition. Pursuant to an act of the Legislature of 1866, the Canal Board appointed Mr. Byron M. Hanks the Resident Engineer of the Chenango canal extension. It has proved a fortunate appointment. Mr. Hanks has been constant in the discharge of his duties. An extract from his report will be found in the appendix.

How is the State to be benefited by the extension of the Chenango canal? The question of fuel and its supply, which is now creating alarm in the old world, while it is only a question of dollars and cents with us, must ere long, even here, become a matter of necessitous solicitude. The demand for coal is rapidly increasing, and its consumption is becoming almost universal as our forests disappear. The product of coal this year is nearly two and a half millions of tons in excess of the quantity in any former year, raised from the mines of Pennsylvania, and yet the demand for it has so increased, and the means for transportation is so restricted, that the price is not perceptibly diminished in the interior of our State. The sagacity of companies now engaged in the mining business is already manifesting itself in the construction of railroads to the coal beds. Hence, we see that the company owning the North Branch canal, with which we propose to connect near Athens, in that State, has nearly completed already a railroad from Towanda to Waverly, in this State, which is intended to supply from immense beds of bituminous coal the increased demand for that article, which has sprung up already in this State; and notwithstanding the capacity of that canal, so great is the business of transporting, that the same company is engaged in constructing a railroad the whole length of it, thereby demonstrating the insufficiency of that canal to do the freighting business in that single item of trade. If, then, supply and demand, or the increase of business in Pennsylvania in the coal trade alone, will warrant companies in pushing forward public works, ought not the State of New York to feel doubly sure that so important a link as the forty miles of canal extending from Binghamton to the State line, to connect with the North Branch, will not only certainly pay a fair interest on the money invested, but actually prove a source for increasing the canal revenues of the State? This individual enterprise clearly demonstrates this proposition. How is anthricite coal transported from Wyoming and Lackawana Basin to Elmira? Is it not by the North Branch canal one hundred and four miles to the Chemung pool, and thence by the Junction canal twenty-five miles or more to Elmira? And all this stretch of canal, too, is the property of individuals, who are at liberty to make such arrangements in the sale and delivery of coal as actually to amount to a monopoly in that article of domestic use, the cost of which is most heavily felt by the poor and middle classes, who constitute the bulk of the consumers. Certainly, then, the completion cf the extension, and its junction with the North Branch canal at the Chemung pool, will have the tendency to facilitate the transit of coal to all the interior portion of the State, thereby checking, if not destroying the tendency to monopoly in the coal trade, enabling all classes to enjoy its use at cheaper rates, while the revenues of the State shall by the same means be increased, in all human probability, to an extent far beyond the amount requisite to pay the interest on the money expended in the construction of the canal.

In order that these great facts may be the more readily comprehended, I have caused a map of the two States, New York and Pennsylvania, to be made, and the same is annexed to this report. The importance of this interstate canal will be gathered at a glance, and the vast extent of inland navigation of the two States thus connected will be more readily understood than could otherwise be made to appear.

REPAIR CONTRACT SYSTEM.

The Commissioner has so fully expressed his opinion of the practical working of this system in former reports, that he refrains from any extended discussion of the subject at this time, further than to say, what is daily becoming more apparent—the policy is a bad one, and the sooner it is abandoned the better, both for the welfare of the canals and the interest of the State. Repair contractors uniformly support it—forwarders and boatmen universally condemn it. For many years past the Legislature has been in the practice of passing special acts for the relief of contractors, in *some* cases, even, where the canal authorities have been obliged to declare contracts abandoned because of the culpable and continued negligence of the contractor. It is difficult to see how Canal Commissioners can enforce a contract, when the Legislature is certain to remit the penalty imposed for its violation. In other cases, where a canal break has occurred, the cost of repairing which exceeded four thousand dollars, and one-half of such excess, by the terms of the contract, was to fall upon the contractor, the Legislature has been quick to interpose by a special law, to "authorize and require the Canal Board to hear and determine" the claims of the oppressed (?) contractor, and refund to him the full amount of such excess. Not a single break which occurred on the Middle Division, from the great freshet in March, 1865, the expense of repairing which exceeded the amount above named, but what is assumed by the State, or laws are already passed " authorizing and requiring " such an assumption. That there are or may be instances where a large and extraordinary expenditure is necessary on the part of the contractor, and where the State ought, in *equity* and *justice*, to interpose for the relief of a contractor, there can be no doubt in the mind of any reasonable man acquainted with the circumstances of some cases. But, when the legislative clemency becomes so flexible as to include *all* cases—even though they may be similar in *kind*, but largely differing in *degree*—and carries the principle to such an extent that it is becoming a proverb, that "if any loss is to be sustained it must be by the State, and if any profit is made it must be by the contractor," it is high time for the Legislature to consider well before acting inconsiderately.

REPAIR ACCOUNTS.

The reported cost of the "Ordinary Repairs" of the canals is a subject of public interest and public concern. It is reasonable to suppose that the amount charged to " ordinary repairs" is just the amount paid to repair contractors under their repair contracts—nothing more—nothing less—and more especially, as they embrace *all* the ordinary repairs to be made on their respective sections (except weigh locks, and in some instances the reconstruction of locks and dams when rebuilding becomes necessary). But such a supposition, however reasonable, is far from being correct, either in theory or practice. Since the passage of the act, chap. 169, Laws of 1862, closing the "construction account," there have been but two accounts under which any kind of canal expenditures could be charged. These are, "extraordinary" and "ordinary repairs." As a general rule, the former is ordered by the Canal Board. In *all* cases work chargable to this fund must be directed either by the Legislature or the Canal Board. The Canal Commissioners have no right, power or authority, to expend a single dollar from this fund, without the direction of the Legislature or the Canal Board. The plain and simple reason why the "ordinary repair" account is swelled so far beyond the gross amount paid to repair contractors is, that the Legislature, by *its special enactments* " for the relief" of contractors—for payment of damages to lands from canal breaks—for the construction of bridges on new roads in the country and new streets in the city—for the construction of stone dams in rivers—and other works of similar character, involving the expenditure of money by hundreds of thousands of dollars, directs, almost invariably, that "the cost of such work" or "award" (as the case may be), "shall be paid from the ordinary repair fund"; thus swelling the amount charged to that fund far beyond what is proper or legitimate, or (in the opinion of the Commissioner) constitutional. The "fund" for ordinary repairs is, under the constitution, to be derived from the canal revenues, and the right of the Legislature to construct works of an original character, and pay the expense of such construction from the fund in question, is, to say the least, of doubtful character under the Constitution. The amount expended on this Division, the past year, under the authority and direction of "special laws," is $167,748.78—an increase over the preceding year of $70,878.30. (See page 73 of this Report for the detailed expenditures.) These special laws are mandatory in their character. A Canal Commissioner is, by the terms of the act, not only "authorized," but positively "required" to do and perform as the law orders and directs; and when he has done so, and done it in good faith, and done it by legislative authority, and finds his expenses for the "ordinary repairs" of his Division increasing from year to year, and he knows it is from the causes above recited, and finds himself charged with extravagance in his administration—in this respect, at least, he knows the charge is not true in *fact*, however well it appears in *theory*, or however innocently it may have been made against him by the public, whose right and duty it is to hold its officers to a strict accountability. But it may be asked: "Why does a Canal Commissioner construct works ordered by legislative enactment, if he doubts the constitutionality of the enactment?' A Canal Commissioner is an *administrative*, and not a *judicial* officer. It is not his province to refuse obedience to an imperative mandate of the law-making power, by assuming to decide the constitutionality of its action. To him is not left the high prerogative of "construing the Constitution as he understands it." He must execute the law, if he can, and make his drafts upon the Auditor of the Canal Department, who is alone clothed with the power to pay, when they are right, and refuse payment when they are wrong.

SENECA LAKE.

This lake furnishes the supply of water for that portion of the Cayuga and Seneca canal, and the hydraulic works along its line, from Geneva to Mud lock. In times of drought the natural flow from the lake is insufficient to supply the demand, and either navigation or the great manufacturing interests along the river must suffer.

The water now flows from the lake without obstruction, and in times of high-water the surplus is soon wasted, and when the dry season comes a scarcity of water is felt. The State, in enlarging the Cayuga and Seneca canal and in deepening the outlet of the lake, has increased this difficulty by so enlarging the capacity of the discharging channels, as to cause a more rapid waste of water, and a quicker and greater reduction of the surface of the lake.

The remedy that suggests itself, is authority to stop the waste of water over the Waterloo dam, after the surface of the lake has subsided from the usual spring freshets to a point one foot above its present low water mark, and holding one foot of reserved water in the lake, to be used during the dry season.

This plan would insure an abundant supply of water for all purposes through the entire season, and as there would be no more obstruction at times of high water than there now is, it is believed that it would not materially injure the low lands at the head of the lake.

AMSDEN'S HYDROSTATIC SCALE.

An appropriation of $500 was made by the Legislature of 1865, "to be expended for the purpose of testing 'Amsden's Hydrostatic Scale' upon canal boats." The Canal Board referred the subject to the Canal Commissioners, and the undersigned was authorized by that board to cause the requisite test to be made. He thereupon appointed a committee consisting of L. L. Nichols, Esq. Civil Engineer, George R. Perkins, Esq. Prof. of Mathematics, and M. S. Kimball, Esq. Civil Engineer, with power to make a full test trial. The committee made a very thorough investigation of the scale, with satisfactory results, as will appear in their full detailed report, which will be transmitted to the Legislature by the Canal Board. A further appropriation of about ninety dollars to defray the expenses of the trial will be necessary.

In concluding this, his last annual report to the Legislature, the Commissioner cannot suffer the occasion to pass without offering his congratulations upon the prosperous condition of the canals, and the near approach of the period when the canal debt, which, for so many years has made its annual constitutional demands upon the treasury, will be fully liquidated and discharged. The canal system is the pride and glory of the commonwealth; it has made New York the Empire State. Ranking as the fifth State of the Union at the first census, it speedily rose to the first position in point of population and power, and while other states have been progressing with unexampled rapidity in the great race of wealth, numbers and prosperity, the "Empire" has not only outstripped all competition, but for half a century has borne the banner of the republic at the head of the great American Union. If we ask what has been the secret of this success, we are pointed to the map of our State, and our inquiry is answered by the silent but powerful facts which there present themselves to the eye. While the broad domains of the State were still unbroken forests and howling wilderness, bold minds conceived and strong arms carried out the magnificent project of uniting the waters of the lakes with those of the Atlantic. Quickly along that line from the Erie to the Hudson the tide of population rolled in, built up their towns, constructed their mills, improved their farms, and made New York the leading member of the great republic. And from that time to the present, while other portions of the State are still almost untenanted or sparsely settled, the line of the grand canal and the country adjacent to it, has become populous, wealthy and powerful. This incontestable evidence exhibits to us that part which our canal system has effected in the material history of the State.

In view of these facts, will the people of New York consent to sacrifice the system to which they are indebted for all of their prosperity? To say nothing of the rights and conveniences of every person to use these great highways for his personal convenience or profit, or of its influence in preventing those huge monopolies to control the interests of the State and of its people, which would most surely spring up in the event of any sale or alienation of the proprietorship and direction of the canal system, a prudent, judicious and watchful management of that important interest will retain for years, perhaps for generations, that already vast and rapidly increasing trade which flows from the plains and prairies of the mighty West to the great emporiums of the East, and which fills the treasury, pays the public debts, supports the Government, and adds to the private as well as to the public wealth of the State.

Attempts have been, and will continue to be made, to create competing avenues of transport, under the specious pretense of public benefit. But the people of this State, it is to be hoped, will not blindly yield themselves to be led into any such disastrous folly as to sacrifice their true and well-established interests for the unconstitutional purpose of benefiting localities—as such schemes will ever prove to be when brought out to the light of a full and candid investigation.

The experience which has been derived from an official position connected with the canals, has been such as to convince the Commissioner of the immense importance of a due protection and a careful administration of the affairs of that great public interest.

It will be the duty of those who shall be entrusted with the future care of this system, to watch over and adapt its administration to the changes to which it is liable, that the "State may receive no detriment" from any revolution of commerce or the constantly changing condition of the growing Nation. And then, in time to come, as in the years past, the Empire State of the Republic will still rejoice in the magnificence and prosperity of its Grand System of Internal Improvements.

All of which is respectfully submitted,

B. F. BRUCE,
Canal Commissioner.

DETAILED STATEMENT

OF THE REPAIRS AND IMPROVEMENTS MADE DURING THE YEAR, AND IMPROVEMENTS NECESSARY TO BE MADE ON THE CANALS OF THE MIDDLE DIVISION, ACCOMPANYING THE COMMISSIONER'S REPORT FOR THE FISCAL YEAR ENDING SEPTEMBER 30, 1866.

ERIE CANAL.

Navigation upon the middle division of this canal has been excellent, with the exception of some slight interruptions caused by low water upon the Jordan level.

The extraordinary low stage of water in the Skaneateles lake reservoir, in March last, coupled with the fact that there was no large body of snow upon the ground to furnish the usual spring floods to replenish the lake, admonished the canal officers of the necessity of looking for an additional supply from other sources, as well as a judicious and economical management of the supply on hand.

A calculation of the demand for the Jordan and Port Byron levels, based upon the lockages of 1864, and also of the supply on hand in the Skaneateles lake reservoir and other sources, making due allowance for evaporation and the amount that would be gathered in the lake drainage basin, taking the average fall of rain for the last twenty years during the months of navigation, showed that the amount then on hand in the Skaneateles lake reservoir, the main source of supply, would become exhausted on or about the 15th of August.

The discharge gates at the lake were immediately closed, doing great damage to the manufacturing interests on the outlet below; but the urgency of the case demanding it, they were kept closed until the opening of navigation, increasing the head over the immense surface of the lake about six inches.

The great draught upon the reservoir, and the almost total absence of rain during the first two months of navigation, so reduced the surface of the lake as to occasion fears of an early exhaustion of the supply. In this emergency a temporary feeder was constructed, and the waters of the Owasco creek taken into the canal on the Port Byron level to supply the deficiency at lock No. 52. The water from the feeder was let into the canal on the 26th day of July, since which time the Port Byron level has been entirely supplied from this source, relieving a draught of 3,500 cubic feet of water per minute from the Skaneateles lake reservoir, which has been barely competent to supply the Jordan level alone.

Without the introduction of the waters of the Owasco creek, it is believed that it would have been utterly impossible to have maintained navigation on the Jordan and Port Byron levels during the past season.

An act authorizing the permanent appropriation and construction of this feeder is recommended as absolutely necessary for the maintenance of navigation. The wooden trunk temporarily constructed to conduct the water from the old mill site to the canal, will last several years, but eventually a permanent channel should be constructed in its place.

An appropriation of $3,000 is now required to render the banks of the old mill race safe and reliable for the purposes of said feeder.

The Oneida creek feeder was nearly all thoroughly bottomed out last spring, which greatly increases its capacity. The completion of this work after the close of navigation will require but a small additional expenditure. The turning of Cowassalon creek into Oneida creek to avoid the trouble at the Cowassalon culvert, is again recommended.

The old bench wall on the mile level between locks Nos. 48 and 49, in the eastern part of the city of Syracuse, should be removed and a vertical wall substituted. This is a work that is required not only to accommodate the increased demand for wharfage at this point, but to avoid the inconvenience to navigation caused by the old plan of bench wall at a point where frequent crowds occur. There are also several points upon the level in the central part of the city, where large manufacturing interests are dependent upon the canal for shipments, at which a vertical wall is required.

A new cradle has been inserted in the Syracuse weigh-lock; the suspension rods enlarged, and other repairs made to avoid the frequent breakages.

Work has been commenced upon the iron bridge at Grape strreet, Syracuse, which will be completed before the opening of navigation next spring.

An expenditure of $6,991.70 has been made as an extraordinary repair to strengthen and secure the banks upon the Cayuga marshes and across the low soft ground east of Montezuma. The work has only been done at points of serious danger; and as these banks are constantly settling into the soft material upon which they are placed, a considerable expenditure will be required from time to time to maintain them.

The banks of the Orville feeder, at the junction of the Erie canal, have been strengthened and secured beyond the probability of a breach.

THE STATE DREDGE.

The old State dredge had become so dilapidated and shattered as to render its reconstruction an imperative necessity. An entire new boat has been built, into which the old engine and machinery was placed, the aggregate cost of which was $3,190. The *net earnings* of the dredge since its reconstruction, are $2,178, which has been charged to contractors and deducted from their drafts.

OSWEGO CANAL.

The navigation upon this canal, during the season just passed, has been uninterrupted, with the exception of a few hours detention in repairing a slight breach in the bank at Fulton, as well as the removal of old and insertion of new lock gates.

The towing-path has been graveled up and is now in unusually good repair throughout its length. There are no structures upon this canal calling for immediate attention, except in the way of repairs.

The dams upon the river, which suffered from the freshet of 1865, have been partially rebuilt or placed in a condition to maintain, for the present at least, a competent supply of water for the canal. Yet for the permanent security of the State against repairs, as well as the failure of water, it is highly important that no dam upon the river should be left in the condition of its original construction, and it is therefore recommended that High dam, the only one now remaining in that condition (the dam at Minetto having been already advertised to be rebuilt), should be placed under contract, to be constructed on the plan already adopted in the case of Oswego Falls, Braddock's Rapids, and Phœnix dams.

The work upon the dams at Phœnix and Oswego Falls, has progressed with vigor up to this time, and both structures will be completed at the close of this season.

A portion of the materials are delivered for the dam at Braddock's Rapids, and work will be commenced upon it, at an early date, with a view to its completion next season.

The plan upon which all the dams on the river are to be rebuilt are identical, varying only in detail to accommodate location, and are prepared in accordance with a policy adopted of rebuilding them of stone, and in a form to control all the water of the river.

The berme bank extending from Horse-shoe dam lock, to the lock at Hinmansville, a distance of 89 chains, has proved to be a work of greater magnitude and expense than was anticipated when the work was first put under contract. This results mainly from the loss of a large percentage of the material of which the bank is composed by the action of the current while being deposited, as well as the spreading out to an unexampled extent of the base of the bank as it is formed upon the bed of the river. The water, in some cases, is twenty-one feet in depth, and some portion of every boat load is unavoidably carried away with the current. The work has however steadily progressed, and as the bank has already been constructed in the deepest water, it is believed that the remainder will be built at a reduced percentage of loss, either in the washing away of the material or its spreading upon the bottom, and be completed during the next season.

The construction of this bank does away with the necessity of rebuilding the Horse-shoe dam,—a matter of no small moment, when we consider the difficulty of its reconstruction,—there being, unlike the foundations of all the other dams upon the river, except High dam, no rock foundation upon which to locate it.

The weigh lock at Oswego is completed, and the final account for the same is being prepared, and will be shortly rendered. The scale was inserted last spring, by Sampson and Tibbitts.

On the morning of the 12th of September, the weigh lock building took fire from a burning building adjacent to it, and a portion of the roof and inside wood-work was destroyed. Repairs were immediately made.

The iron chord road bridge at Oswego, authorized by act, chap.

611, Laws of 1866, was put under contract at the close of the fiscal year.

The construction of the guard gate at Baldwinsville, to take the place of the old guard lock, which was a timber structure, and had decayed to such an extent as to render it entirely worthless, is completed, and the final account rendered, showing a total cost of $10,985.70. The appropriation for this work was only $10,000, leaving a balance of $985.70, for which amount an additional appropriation is recommended.

Grates have been inserted at the head of Salina and Liverpool culverts, it being found indispensable, to prevent their filling up from flood wood and debris.

CAYUGA AND SENECA CANAL.

It was found difficult to keep seven feet depth of water at points upon this canal, in consequence of the low water of August last in Seneca lake; yet navigation suffered no serious detention from this cause, although it became necessary to close the gates of several mills and manufactories at Waterloo.

A detention of a day and a half occurred at composite lock No. 6, in consequence of the bulging in of the sides of the lock, causing boats to wedge.

This lock has been a fruitful source of difficulty and expense to the State ever since its construction. The chamber is too narrow to receive timbers of sufficient size and strength to withstand the pressure of the water behind them when the lock is suddenly emptied.

The leakage through the dry walls of the chamber and around the lower wings is considerable. In 1862 the space between the plank lining and the walls of the lock was filled with concrete, to prevent the water from getting behind, which soon became broken, and, dropping down with every yielding of the timbers, forced the facing in to such an extent as to make it extremely difficult to pass an ordinary loaded boat. Last spring the lining and a portion of the concrete was removed, and only one course ot lining replaced, yet loaded boats still wedge, and have to be flooded out of the lock, Navigation upon this important canal is liable to serious interruption from this cause, and it is earnestly recommended that this lock be taken up and relaid in cement, upon the plan adopted for the locks upon the Chenango canal. The estimated cost is $6,500.

A waste weir has been constructed at the head of lock No. 5, upon the short level at Seneca Falls, which effectually disposes of the surplus waters at that point,

The great leakage through the brush and stone dams on the river level, below Seneca Falls, made it difficult at times to keep the requisite depth to float boats drawing six feet of water. These dams should be rebuilt of more reliable material.

CAYUGA INLET.

The work of dredging the channel and removing bars from the Cayuga inlet, so as to make a depth of seven feet of water from Owego street bridge to Cayuga lake, as required by chap. 748, Laws of 1866, has been done at an expense of $930.53, for which $1,000 was appropriated.

CROOKED LAKE CANAL.

The old locks on this canal are built on the composite plan, of rubble masonry, laid dry, with a timber and plank facing in the chambers.

These walls were originally built too light, and have gradually bulged in from the action of frosts and the pressure of the banks behind them, and a periodical dressing off of the face of the bottom portion of the walls, has been necessary to allow of the passage of boats.

To such an extent has this been carried upon some of the locks that the stone have become loose and broken, and any farther widening by this process is impossible without undermining the walls.

Some of the locks are so narrow at the foot as to seriously interfere with the passage of loaded boats.

It is recommended that the walls of the locks Nos. 8, 9, 13, 15, 16, 18 and 19 be taken down, additional stone procured, and the whole relaid in cement upon the plan adopted for the locks upon the Chenango canal.

Several slides have occurred in the banks—one in the hill side on the berme above lock No. 2 threatens to fill the canal with debris; and above lock No. 26 a slide in the towing path has left it in a precarious condition.

Piling is recommended to properly secure these and other places, for which an appropriation of $1,000 will be required.

CHEMUNG CANAL AND FEEDER.

There have been two interruptions to navigation on this canal, of a day and a half each, caused by a break in the berme bank of the feeder at Big Flats, and the giving away of the berme lower gate to lock No. 1. Some difficulty has also occurred in passing boats drawing four feet of water over the lower mitre sill of lock No. 1, in consequence of the extreme low water in Seneca lake. In the reconstruction of this lock (now under contract) it is recommended that the foundation be lowered to conform to the bottom of the Watkins level.

The raising of banks to maintain four and one-half feet of water has progressed at points where most needed, but should be completed to ensure safe and permanent navigation.

But very little remains to be done to complete the work in the Chemung river at Corning. A substantial timber docking, fifteen feet high and forty chains long, has been constructed, above high water mark, affording safe and ample facilities for the demands of trade at that point.

The rapidly increasing coal trade demands greater facilities for transhipment and the passage of boats of the enlarged class from the canal into the lake.

A new breakwater should be constructed, the present one extended, and the harbor deepened at several points.

Locks Nos. 24, 25, 28 and 32 were reconstructed last winter, and there remains, of the old timber locks, only Nos. 1, 36 and 40, now under contract to be rebuilt.

A highway bridge over the Chemung canal feeder, in the town of Corning, has been constructed, pursuant to act chapter 23, Laws of 1864.

CHENANGO CANAL.

Navigation has been well maintained during the past season. The thorough bottoming out of the feeders last year greatly increased their capacity to supply the demand upon them.

Locks Nos. 56, 60, 77, 105, 106 and 107 were placed under contract so late last season as to make it difficult to obtain the material in time to complete them during the suspension of navigation. Materials are now being delivered, and their resconstruction will be accomplished next spring.

Locks Nos. 52, 55, 61, 65, 78 and 79 should be put under contract to be rebuilt as soon as practicable. All of the remaining old composite locks will need rebuilding soon, but those selected above are in the worst condition and require immediate attention.

Kingsley Brook Reservoir.

This work, owing to the scarcity of laborers, has not progressed as fast as was anticipated. The main dam and waste weir, however, is in a forward state, and will be completed before the frosts of winter. The work on the feeder is progressing, and its completion, ready for use next spring, is confidently expected.

In the original construction of this reservoir the dam was raised to about half its intended height, when a change was made, making the dam and flow line about fourteen feet lower than the height at first fixed upon.

In the estimates for its reconstruction, only the repairs of the breaches was contemplated; but it was afterwards deemed economical to carry out the original plan and raise the dam and flow line to the height originally designed.

This change increases the cost, but adds over 100 per cent to the capacity of the reservoir, and will, when completed, in connection with the other reservoirs and feeders of this canal, ensure an abundance of water at all times.

Statement showing character of work, estimated cost at contract prices, amount done during fiscal year ending Sept. 30, 1866, *total amount done, and amount remaining to be done, on work under contract on Middle Division of New York State canal.*

Character of work.	Estimated cost at con-tr'ct prices	Amount done during fiscal year.	Total am't done.	Amount remaining to be done.
ERIE CANAL.				
Improvement of nine mile creek feeder	$3,000 00	....	$1,540 00	$1,460 00
Temporary feeder at Port Byron......	10,173 78	$10,173 78	10,173 78	Settled.
Opening State ditch do do	5,220 00	....	....	5,220 00
Iron bridge at Grape street, Syracuse.	9,771 00	840 00	840 00	8,931 00
Improvement Oneida creek feeder	4,435 74	2,260 00	2,260 00	2,175 74
Total	32,600 52	13,273 78	14,813 78	17,786 74
OSWEGO CANAL.				
Weigh Lock at Oswego...............	$46,500 00	$12,080 00	$44,400 00	2,100 00
Scale for do do	4,650 00	4,650 00	4,650 00	Settled.
Stone dam at Phœnix................	56,105 00	23,500 00	45,420 00	10,685 00
do do Oswego Falls...........	30,600 00	12,360 00	12,360 00	18,240 00
do do Braddock's rapids......	60,000 00	....	....	60,000 00
Berme bank in Oswego river..........	180,000 00	55,100 00	72,800 00	107,200 00
High dam completion................	36,483 77	12,663 77	36,483 77	Settled.
Iron chord bridge at Oswego..........	1,621 50	....	....	1,621 50
Total	415,960 27	120,353 77	216,113 37	199,846 50
CHEMUNG CANAL.				
Work in Chemung river at Corning, at old contract prices	$70 000 00	$14,140 00	$62,180 00	$7,820 00
Work in Chemung river at Corning at additional prices authorized by act, chapter 495 Laws of 1865...........	45,000 00	36,100 00	36,100 00	8,900 00
Rebuilding of Lock No. 1..............	9,155 00	....	....	9,155 00
do do do 24..............	4,855 22	4,855 22	4,855 22	Settled.
do do do 25..............	5,126 13	5,126 13	5,126 13	do
do do do 28..............	5,982 45	5,982 45	5,982 45	do
do do do 32..............	5,437 13	5,437 13	5,437 13	do
do do do 36..............	6,195 00	....	....	6,195 00
Highway bridge over feeder in town of Corning............................	919 44	919 44	919,44	Settled.
Selser swing bridge at Watkins.......	3,775 00	....	....	3,775 00
Total	162,640 37	72,560 37	120,600 37	42,040 00
CHENANGO CANAL.				
Rebuilding Kingsley Brook reservoir..	$75,500 00	$40,540 00	$55,260 00	$20,240 00
Rebuilding lock No. 56..............	9,264 00	780 00	780 00	8,264 00
do do 60..............	9,044 00	780 00	780 00	8,264 00
do do 77..............	7,831 00	....	....	7,831 00
do do 105..............	6,701 00	....	....	6,701 00
do do 106..............	5,747 00	....	....	5,747 00
do do 107..............	9,669,00	....	....	9,669 00
Total	123,756 00	42,100 00	56,820 00	66,936 00

EXTENSION OF THE CHENANGO CANAL.

The surveys and estimates of the cost of this important work have been completed, and a large portion of the work placed under contract as follows:

Letting June 22d, 1865.

Sections Nos. 1 to 10, inclusive:
All bridges on same.
All culverts on same.
Locks Nos. 1, 2 and 3.

Letting February 7, 1866.

Sections Nos. 11 to 20, inclusive:
All culverts on same.
Locks Nos. 4 and 5.
Choconut creek, Tracy creek and Appalachin creek aqueducts.

Letting June 15, 1866.

Sections Nos. 21 to 30, inclusive:
All culverts on same.

The estimated cost of the above work, according to estimates prepared by L. L. Nichols, civil engineer, formerly in charge of the work, prior to the letting of any portion of the line, is	$1,099,350
Estimated cost of same at contract prices	1,120,946
Estimate of cost at contract prices in excess of engineer's estimate	$21,596

The following table is an exhibit of work not under contract, length of sections and estimate of cost, as prepared by L. L. Nichols, civil engineer:

Character of work.	Length in chains.	Amounts.
Dam and guard lock section	74	$50,000
Section No. 31, including culverts and bridges	80	15,250
do 32, " " "	80	20,200
do 33, " " "	80	19,250
do 34, " " "	80	18,000
do 35, " " "	80	24,000
do 36, " " "	80	21,750
do 37, " " "	84	20,300
do 38, " " "	80	13,650
do 39, " " "	62	10,250
Lock No. 6, 6 feet lift		12,405
do 7, 6 "		12,805
do 8, 8 "		14,030
do 9, 7 "		13,295
do 10, 12 "		18,725
do 11, 7 "		12,995
Archibald's creek aqueduct, 2 spaces		10,662

Wappasenna creek aqueduct, 4 spaces	$13,391
Little Wappasenna creek aqueduct, 2 spaces	10,662
Parks " 1 space	9,136
Five waste weirs	10,000
Bridges on sections 11 to 30 inclusive	74,100
	$424,856

These estimates are based upon the line as now located upon the south side of the Susquehanna river. Should it be determined to cross the river at or near Barton, on section No. 37, the cost of the work would be largely increased, by the necessity of building an extensive dam, shute, towing path bridge and guard lock, in addition to a longer and more expensive line. The line at this point has not, as yet, been finally adopted.

It will be observed, upon an examination of the tables appended to this report, that upon many of the sections the estimates of the cost at contract prices are in excess of the estimates of the engineer, made before the letting of the work. The causes of this increase are many. Revised estimates having been made by Byron M. Hanks, Resident Engineer in charge, with a view of arriving at actual cost of the work at contract prices, which could only be done after the work had sufficiently progressed to develop the character of material, necessity of protection against river freshets, leakage of the prism, &c.

It is believed that the estimates, as now prepared, will cover the entire cost of the work, exclusive of land damages and engineering. In the report of Resident Engineer Hanks, the following explanation is made of the causes of the increase, to which attention is directed :

" The cost of constructing the work will exceed the estimated cost at contract prices, as reported last year, for various reasons, many of which could not certainly have been foreseen previous to opening the work—as, for instance, in the classification of material; the proper method of finishing the prism where quicksands and other unstable material occur. Also in the method of protecting the banks of sections built in the river, where the original estimate was based on the supposition that a simple slope wall of heavy stone would be adopted. Rip-rap and loose stone protection, and in one instance rubble masonry in cement, have been substituted. The reason for not using slope wall, as so originally intended, was because suitable stone in sufficient quantities could not be had without great trouble and expense, while there was an abundance of material for loose stone protection and rip-rap—and while the price of the latter has been generally about the same as that of slope and protection wall, and sometimes considerably less, yet the quantity generally exceeds considerably the amount that was estimated of slope and protection wall for the same locality.

"The item of excavation, on nearly all the sections, will be increased, as more or less outside ditches and extra excavations always occur, that were not foreseen in getting up the approximate quantities.

"The construction of road also increased the cost of several sections, where it seems no estimate had been made by former engineers in charge. But where the roads are to any great extent changed, generally the object gained is the saving of road or farm bridges.

"Rock excavations have occurred on several sections where none was anticipated, and where it was known to exist it had generally been found in larger quantities than was expected.

"Sections Nos. 2, 5, 6, 9, 11 and 17, are examples thus far of increased cost, on account of rock in unexpected quantities.

"Section No. 26, exceeds the Engineer's estimate somewhat largely, as do several other sections and groups. Originally the principal item of work was embankment, occasioned by locating the canal far out in the river at a point known as the Narrows, where in times of freshets there is great depth of water and a violent current. My estimate of the cost of constructing this section, is based on the supposition that the line should be thrown more into the bluff, which increases the excavation and diminishes the embankment. This change I consider necessary—first, for the safety of the work; next, the land owner on the opposite side of the river, where the bank is low, would be greatly damaged by any narrowing of the channel, which would cause an increased height of water in flood times; and again, if the embankment should be built a larger area of land must be necessarily taken above and below the narrows for borrowing pits—which the State would have to pay for—thereby virtually increasing the cost of the sections by way of land damages, when the material on the hillside and bluffs would answer every purpose for building the great bulk of the bank, exactly as well. I have made an allowance for the contingency of any land slide that may be likely to occur from the steep hill-side, after making excavation along the base of the bluff.

"Section No. 5, owes its principal cause of increase to the vertical wall, in cement, to save a valuable mill site, and in the unexpectedly large amount of rock excavation and increased amount of protection wall.

"Section No. 8, the excavation of earth is far in excess of the approximate estimate; and this is because necessary to support the side of the prism, through a deep sand cut, with sheet docking. In the estimate I have anticipated a similar outlay on sections 6 and 18, believing them to be of similar character.

"Section No. 23, is increased heavily by a change of the location of the highway nearly its whole length, by which three or four bridges are dispensed with.

"A large amount of loose stone protection was found necessary, which was not provided for in the approximate estimate; also a quantity of sheet docking through the business portion of Owego. The same may be said of section 24.

"The first group of bridges are nearly doubled for the reason that I have included the supposed cost of two railroad bridges not included in the approximate estimate.

"All the mechanical structures are somewhat increased, for various reasons, such as lowering or changing in some respect creek channels, and to meet other contingencies expected to arise.

"The culverts in particular, are largely increased, owing to the fact that most if not all of them as estimated by the former Engineers, were of insufficient dimensions for the structures of the hilly country, which are liable to sudden changes from destructive mountain streams to dry channels.

"The number of these structures has also been increased to accommodate water courses apparently heretofore overlooked and not provided for.

"The progress of the construction of the extension has not been what we could desire, owing mainly to the scarcity and consequent dearness of labor—still there has been a considerable disposition on the part of the contractors to meet and overcome every obstacle."

A map of the Chenango Canal extension, showing its connections with other canals of the States of New York and Pennsylvania, is annexed to this report.

FINANCIAL STATEMENTS

ACCOMPANYING THE ANNUAL REPORT OF THE CANAL COMMISSIONER IN CHARGE OF THE MIDDLE DIVISION OF THE NEW YORK STATE CANALS, FOR THE FISCAL YEAR ENDING SEPTEMBER 30, 1866.

STATEMENT NO. 1, *showing the canals, feeders and reservoirs in charge of the Commissioner.*

CANALS.

		Miles.
1.	The Erie canal, from Higginsville, Oneida county, to the county line between Seneca and Wayne counties, including Limestone, Butternut and Nine Mile creek feeder, each navigable one mile	71.93
2.	The Oneida Lake canal, including towing path on Wood creek, six miles, the Oneida feeder, falling into the canal at Durhamville, and navigable one mile	7.
3.	The Oswego canal	38.
4.	Oneida River improvement	20.
5.	Seneca River towing path	5.75
6.	Seneca River improvement, at Baldwinsville, including three-quarters of a mile of slack-water navigation, without any towing path from Baldwinsville to Jack's reefs,	12.50
7.	Cayuga and Seneca canal	22.77
8.	Cayuga inlet	2.
9.	Crooked Lake canal	8.
10.	Chemung canal	23.
11.	Chemung canal feeder	16.
12.	Chenango canal	97.
13.	Chenango canal extension	39.65
	Total	363.60

RESERVOIRS AND FEEDERS.

	Areas, acres.	Depth, feet.	Length of feeder, miles.
Erieville	340	21½	20
Hatch's lake	134	10	8 to Bradley brook r'voir.
Eaton brook	254	50	8
Bradley brook	134	25	3 to Eaton brook feeder.
Leland pond	173	8	½
Woodman's lake.	148	11	¼
Madison brook	235	45	2
Skaneateles lake,	8,320	6	9
Cazenovia lake	1,778	4½	10
De Ruyter	626	18½ avg.	25
	12,142		85¾

STATEMENT No. 1,

Showing the names of canals, superintendents of repairs and contractors thereon; date and expiration of contracts, and the annual compensation paid to each.

CANALS.	No. of sec.	Superintendent.	Contractors.	Annual compensation.	Date of contract.	Expiration of contract.
Erie	7	Joseph Breed	Clark Snook, assignee	$5,000 00	May 1, 1866	Dec. 31, 1870
Erie	8	Joseph Breed	J. A. Scoville, attorney	6,500 00	Mar. 1, 1865	Dec. 31, 1868
Erie	9	Joseph Breed	Scoville, Eaton & Mowry, as'gs	6,900 00	May 1, 1866	Dec. 31, 1870
Chemung	All	T. W. Amsbury	Jarvis Lord, assignee	25,536 00	Apr. 1, 1862	Dec. 31, 1866
Chenango	1	C. H. Smith	James J. Belden	17,000 00	May 1, 1866	Dec. 31, 1870
Chenango	2	L. R. Hitchcock	George D. Lord, assignee	16,400 00	Oct. 1, 1864	Dec. 31, 1867
Chenango	3	L. R. Hitchcock	F. N. Lord, assignee	18,000 00	June 1, 1866	Dec. 31, 1870
Oswego	1	E. F. Blanchard	William Avery	12,150 00	May 1, 1862	Dec, 31, 1866
Oswego	2	E. F. Blanchard	A. C. Belden	21,000 00	Oct. 1, 1865	Dec. 31, 1868
Cayuga and Seneca	All	Joseph Breed	George M. Case	14,029 50	July 1, 1862	Dec. 31, 1866
Crooked lake	All	T. W. Amsbury	R. Nelson Gere	6,990 00	Oct. 1, 1865	Dec. 31, 1868
Oneida lake	All	Joseph Breed	None			
Total				149,505 50		

STATEMENT NO. 2.—*Description of Sections and Expenditures thereon.*

ERIE CANAL.

The Middle Division of the Erie canal extends from the eastern bank of the Oneida Lake canal to the east line of Wayne county, seventy-two miles, and comprises three repair sections, as follows:

REPAIR SECTION NO. 7.

This section embraces twenty-seven miles of the Erie canal, extending from the Oneida lake canal to the Limestone creek feeder; the Oneida creek feeder, two miles in length, navigable from Durhamville to Oneida, a distance of one mile; and the Erieville and Cazenovia lake reservoirs and Chittenango feeder. Total 29 miles. The structures are 2 aqueducts, 23 culverts, 1 wooden lift lock (Oneida feeder), 5 iron bridges, 3 wooden farm bridges, 15 wooden road bridges, 1 guard gate (Oneida feeder), 3 waste weirs, 3 feeder dams, 2 guard gates.

The expenditures upon this section during the fiscal year were as follows:

BY DRAFT ON AUDITOR.

For annual compensation to repair contr'r,	$5,422 10	
For bulkhead in lower dam at Cazenovia, by resolution of Canal Board	1,195 50	
For improvement of Oneida creek feeder, by resolution of Canal Board	1,921 00	
For part salary Commissioner	125 00	
		$8,663 60

SUPERINTENDENT'S EXPENDITURES.

For repairs State dredge	$116 65
For rebuilding State dredge	3,190 00
For merchandize for same	66 12
For repairs Brandy brook culvert (old bill)	183 43
For signs, "Drive slow over bridges"	14 00

For repairs bridge mouth Oneida lake canal	$62 90	
For miscellaneous expenditures	80 59	
For superintendent's salary and clerk hire	533 33	
		$4,247 02

Miscellaneous Expenditures.

Charles Scherff, assisting weigh master	$60 00	
W. D. Dunning, inspector	208 00	
Wynkoop & Brother, stationery	89 36	
P. H. Agan, P. M., postage	28 40	
W. U. Telegraph Co., messages	89 18	
D. H. Bruce, clerk Canal Commissioner	546 66	
John O'Hara, inspector	160 00	
Purdy & Jackson, printing notice	39 15	
Joanna Tehan, cleaning offices	145 00	
H. Dyer, wood	12 48	
Truair, Smith & Miles, printing blanks	24 00	
Charles Stroud, culvert at Canastota	100 00	
Wilder, Tracey & Co., printing blanks	8 00	
John L. Rohner, advertising	14 18	
Jas. Alderman, digging ditch Canastota	133 00	
Jas. Allum, " "	41 13	
E. R. Holden, agent, coal	21 60	
H. C. Brower, repairs locks	1 50	
B. F. Bruce, traveling expenses	100 00	
Truair, Smith & Miles, advertising	14 18	
Dawson & Co., advertising	111 68	
E. N. Kelsey, damages in 1855	350 00	
W. V. Van Rensselaer, inspector	100 00	
Geo. L. Maynard, P. M., postage	28 25	
		2,425 75
Total expenditures on section		$15,336 37

Repair Section No. 8.

This section extends from Limestone creek feeder to Lock No. 50, above Geddes, including Limestone and Butternut feeders, each navigable one mile; total 13 miles. The structures are: 3 double stone lift locks, 2 aqueducts, 4 culverts, 1 weigh-lock, 1 wooden farm bridge, 3 wooden feeder bridges, one wooden towing path bridge, 9 wooden road bridges, 2 iron tow path bridges, 7 iron road bridges, 1 iron foot bridge, 1 feeder dam, 1 waste weir, 3 lock houses, 1 State shop.

The expenditures upon this section during the fiscal year were as follows:

BY DRAFT ON AUDITOR.

For annual compensation to repair contractor	$6,500 00	
For apron and discharge way from culvert near lock 50, by resolution of Canal Board	1,475 10	
For securing banks at outlet of Orville feeder, by resolution of Canal Board,	4,425 40	
For relaying sidewalks at West street bridge, Syracuse, by resolution of Canal Board	252 71	
For part salary of Commissioner	125 00	
For pile rack around head of culvert at Geddes brook, by resolution of Canal Board	225 00	
		$13,003 21

SUPERINTENDENT'S EXPENDITURES.

For repairs of weigh lock cradle, by resolution of Canal Board	$2,001 29	
For filling at lock 48, by resolution of Canal Board	375 00	
For lock tending, Nos. 47, 48, 49, by repair contract stipulation	1,727 97	
For replanking wharf at weigh lock, by resolution of Canal Board	23 76	
For patterns for bridge castings	26 40	
For night watchmen	102 20	
For rebuilding West Street bridge, by resolution of Canal Board	1,545 30	
For repairs of weigh lock scale, not included in repair contract	575 40	
For rebuilding Burdick's bridge, by resolution of Canal Board	926 43	
For timber and material for new floor in weigh lock	231 91	
For superintendent's salary and clerk hire	533 33	
For miscellaneous expenditures	80 59	
		$8,149 58

MISCELLANEOUS EXPENDITURES.

Charles Sherff, assisting weigh master	$60 00
Western Union Telegraph Co. messages	51 13
Jno. Bedford, kindling wood	5 50

E. R. Holden, agent, coal	$44 00	
Howard Soule, jr., inspector	312 00	
A. N. Webb, printing	7 00	
W. D. Dunning, inspector	346 00	
B. F. Bruce, traveling expenses	100 00	
W. V. Van Rensselaer, inspector	381 00	
D. H. Bruce, clerk Canal Commissioner	546 66	
Syracuse Water Co., water rates	23 75	
Wm. McCoy, whitewashing	15 00	
Geo. L. Maynard, postage	41 22	
J. Geo. Stoher, lamp for weigh lock	20 30	
N. Downes, water cooler	13 00	
Littlejohn, Dane & Co., use of boat to test scale	20 00	
N. Y. C. Railroad, vertical wall, by resolution of Canal Board	4,500 00	
		$6,486 56
Total expenditures on section		$27,639 35

REPAIR SECTION NO. 9.

This section extends from the foot of lock No. 50 to the east line of Wayne county, embracing the Skaneateles lake and feeder, and the Camillus feeder, navigable one mile; total 35 miles.

The structures are: 3 double stone lift locks, 6 aqueducts, 2 waste weirs, 6 culverts, 1 wooden change bridge, 11 wooden road bridges, 6 wooden farm bridges, 11 iron road bridges, 1 iron foot bridge, 2 guard gates, 4 feeder dams, 3 receivers.

The expenditures upon this section during the fiscal year were as follows:

BY DRAFT ON AUDITOR.

For annual compensation to repair contractor	$9,430 61	
For repairs breaches by freshet, March 1865, as provided by repair contract	2,088 88	
For part salary Commissioner	125 00	
For conduct Owasco lake to canal, by resolution of Canal Board	10,173 78	
		$21,818 27

SUPERINTENDENT'S EXPENDITURES.

For watching water at Montezuma	$150 00	
For lock tending, Nos. 50, 51 and 52, not embraced in repair contract, being especially excepted	1,200 00	
For watching water at Skaneateles	30 00	

For old bill for materials in 1861	$46 84	
For iron railing May's Point bridge, by resolution of Canal Board	221 50	
For strengthening banks at Montezuma, by resolution of Canal Board	6,991 20	
For miscellaneous expenditures	80 59	
For salary superintendent and clerk hire	533 34	
		$9,353 47

MISCELLANEOUS EXPENDITURES.

Western Union Telegraph Company, messages	$84 10	
Charles Scherff, assisting weigh master	60 00	
B. F. Bruce, traveling expenses	100 00	
Price & Wheeler, shades for Commissioner's office	11 86	
Price & Wheeler, carpet for Engineer's office	38 30	
W. D. Dunning, Inspector	274 00	
Howard Soule, Jr., Inspector	108 00	
P. H. Agan, postmaster, postage	38 30	
D. B. Killmore, wood	35 00	
John L. Rohner, advertising	29 15	
D. H. Bruce, clerk Canal Commissioner	546 68	
Argus Company, advertising	108 68	
Sumners & Brother, printing	20 00	
S. G. Hadley, counsel before Canal Appraisers	120 00	
		1,584 07
Total expenditures on section		$32,755 71

OSWEGO CANAL.

This canal extends from Syracuse to Oswego—38 miles, and includes the Seneca river towing-path and Baldwinsville canal and the Oneida river improvement. It is divided into two repair sections, as follows:

REPAIR SECTION NO. 1.

This section extends from Syracuse to Three River Point, and includes the Seneca River towing-path and Baldwinsville canal. Total 21½ miles.

The structures are: 4 stone lift locks, 1 composite lift lock, 1 wooden lift lock, 1 wooden guard lock, 4 composite culverts, 5 iron road bridges, 1 iron change bridge, 11 wooden road bridges, 4 wooden change bridges, 2 floating tow path bridges, 1 wooden river dam, 3 waste weirs, 4 lock houses, 1 State shop.

The expenditures upon this section during the fiscal year, were as follows:

BY DRAFT ON AUDITOR.

For annual compensation to repair contractor	$12,150 00	
For repairs of breaches by freshet in March 1865, as provided by repair contract	9,390 93	
For securing floor in lock No. 1, and for composite paddles in locks 1 and 3, by resolution of Canal Board	397 80	
For part salary Canal Commissioner	125 00	
For raising approaches to Green Point bridge, protecting same by slope wall, and for painting superstructure, by resolution of Canal Board	957 30	
For vertical wall in front of store house of Salt Springs Coarse Salt Company, by resolution of Canal Board	2,421 73	
		$25,442 76

SUPERINTENDENT'S EXPENDITURES.

For lock gates	$86 50	
For raising waste weir level No. 4	68 17	
For constructing and inserting grates, Salina and Liverpool culverts, by resolution of Canal Board	891 04	
For raising tow path bridge at Salina, by resolution of Canal Board	199 00	
For raising road bridge at Salina, by order of Canal Board	234 85	
For bottoming out side cut at Salina, by order of Canal Board	102 13	
For repairing collector's office at Salina	32 68	
For raising sunken boat, level No. 5	12 00	
For checking boats at Mud lock	75 00	
For supt.'s salary and clerk's services	400 00	
For general inspector and office expenses	600 00	
		2,701 37

Miscellaneous Expenditures.

W. V. Van Rensselaer, inspector	$416 00	
Herring, Farrell & Sherman, safe for collector's office at Oswego	300 00	
Isaac.W. Gere, gravel and material	300 00	
B. F. Bruce, traveling expenses	50 00	
W. Cockings, repairs Salina collec.'s office	2 50	
Simon Stevens & Son, repairs Salina collector's office	8 25	
Wynkoop & Brother, repairs Salina collector's office	6 04	
A. Beers, repairs Salina collector's office	25 68	
		$1,108 47
Total expenditures on section		$29,252 60

Repair Section No. 2.

This section extends from Three River Point to Oswego, including the Oneida River improvement (43 miles). The structures are 13 stone lift locks, 5 stone guard locks, 2 steamboat lift stone locks (120x30), 5 wooden waste weirs, 7 wooden road bridges, 2 wooden road and change bridges, 6 wooden change bridges, 1 wooden river tow path and change bridge, 2 iron road bridges, 3 stone river dams, 6 wooden river dams, 1 aqueduct, 1 bulkhead, 1 drawbridge, 4 composite culverts, 20 lock houses, 1 State shop.

The expenditures upon this section during the fiscal year were as follows:

By Draft on Auditor.

For annual compensation to repair contractor	$21,000 00	
For construction of berme bank	38,505 00	
For reconstruction of High dam	16.236 77	
For construction of weigh lock at Oswego	9,248 00	
For construction of stone dam at Phœnix	15,283 00	
For repairs Three River Point bridge	3,173 51	
For part salary Canal Commissioner	125 00	
For scale for Oswego weigh lock	4,650 00	
For const'ting stone dam at Oswego Falls	7,616 00	
For temporary shute at Fulton	274 00	
		$116,111 28

SUPERINTENDENT'S EXPENDITURES.

For repairing lock gates	$306 81	
For repairing weigh lock	4 64	
For rebuilding road bridge at Three River Point	534 98	
For inspector berme bank, level 6	796 25	
For repairs towpath, level 5, Phœnix	29 74	
For repairs berme bank, level 8	104 87	
For repairs berme bank, level 13	2,575 20	
For repairs berme bank, level 15	190 56	
For repairs berme bank, level 6, below Phœnix	6 00	
For inspector dam No. 1, Phœnix	732 00	
For repairs dam No. 2	2.768 37	
For repairs dam No. 5	1,314 00	
For repairs dam No. 6	537 38	
For repairs dam No. 7	1.468 52	
For towing dredge scow and dump boat	195 65	
For repairs dredge and tools for dam	111 93	
For new tools	128 18	
For removing sunken boat from lock 13	300 00	
For inspectors assisting boats at Oswego	386 00	
For repairs State scow	6 12	
For proportion superintendent's salary and clerks' wages	647 18	
For proportion general inspector and office expenses	1,142 56	
		$14,286 94

MISCELLANEOUS EXPENDITURES.

Argus Company, advertising	$14 85
Bennett Brothers, advertising	14 85
Albany Journal, advertising	29 70
Mary Baker, gravel for High dam	428 00
A. N. Webb, printing blanks	44 70
W. H. Carter, lighting beacon at Brewerton	77 46
Truair Smith & Miles, advertising	14 85
T. Brigham, advertising	14 85
George Chapman, earth for berme bank	75 00
Joseph Wilbur, inspector	423 00
John Trumans, use pile driver	20 00
William J. Kniffin, furnishing collectors office at Oswego	239 03
L. H. Hiscock, counsel before Canal Appraisers	100 00
Sedgwick, Andrews & Kennedy	50 00

Sanford, Wasson & Co., damages reconstructing Oswego Falls dam	$1,677 74	
B. F. Bruce, traveling expenses	50 00	
		$3,274 03
Total expenditures in section		$133.672 25

BALDWINSVILLE CANAL

Extends from the Oswego canal at Mud lock to Jack's reefs, a distance of 18.25 miles. It has principally slack-water navigation on the Seneca river, and is generally known as "Seneca River towing-path." The work is embraced in the repair contract for section No. 1, Oswego canal. Its structures are: 1 guard-lock, 1 lift lock, 1 float bridge, 2 road bridges, 1 dam.

Superintendent's Expenditures.

For constructing new guard gate at Baldwinsville	$10,000 00
For lock-tending at Baldwinsville	185 00
For repairs tow path	24 00
For repairs road bridge at Baldwinsville	171 00
For repairs dam at Baldwinsville	2,266 43
For superintendent's salary	250 00
For general inspector and expenses	100 00
Total Baldwinsville canal	$12,996 68

ONEIDA RIVER IMPROVEMENT

Extends from Three River Point to Oneida lake, a distance of 20 miles, and is embraced in the repair contract for section No. 2, Oswego canal.

Superintendent's Expenditures.

For superintendent's salary	$100 00
For general inspector's salary	100 00
Total Oneida river improvement	$200 00

CAYUGA AND SENECA CANAL.

This canal extends from the Erie, at Montezuma, to Seneca lake, at Geneva, with a branch from lock No. 9 to East Cayuga, at the foot of Cayuga lake. Total miles in length, 23. The structures are: 11 composite lift locks, 1 side lock at Seneca Falls, 9 culverts, 1 pier at foot of Cayuga lake, 1 pier at foot of Seneca lake, 7 iron bridges, 15 wood bridges, 5 dams.

The expenditures upon this canal during the fiscal year were as follows:

By Draft on Auditor.		
For annual compensation to repair contractor	$14,029 50	
For extending docking on berme bank at Geneva, by resolution of Canal Board	288 00	
For part salary Commissioner	100 00	
For sundry repairs under resolution of May 16	387 00	
		$14,804 50
For interest under chap. 734, Laws 1857,		1,731 48
Superintendent's Expenditures.		
For watching water at Montezuma	$150 00	
For removing State dredge and repairs of buoys	57 37	
For tending mud lock, not embraced in repair contract	235 00	
For waste weir at Seneca Falls, by resolution of Canal Board	1,579 62	
For lighting beacon at Geneva	75 50	
		2,097 49
Miscellaneous Expenditures.		
J. P. Chamberlin, use of lands for State yard	$100 00	
Joseph T. Gray, temporary damages	30 00	
D. Wheeler, lighting beacon	48 00	
		178 00
Total expenditures on canal		$18,811 47

CROOKED LAKE CANAL.

This canal extends from Crooked lake, near Penn Yan, to Seneca lake, at Dresden—distance eight miles. The structures are: 27 lift locks, 1 guard lock, 6 waste weirs, 2 culverts, 14 bridges, 4 dams.

The expenditures upon this canal during the fiscal year were as follows:

By Draft on Auditor.

For annual compensation to repair contractor	$6,990 00	
For constructing new channel at Dox brook, and additional protection, by resolution of Canal Board	4,825 00	
For percentage retained on late contract,	899 59	
For part salary of Commissioner	100 00	
		$12,814 59

Superintendent's Expenditures.

For deepening recess guard lock, Penn Yan,	15 00

Miscellaneous Expenditures.

Farley Holmes, lighting beacon	$82 95	
S. C. Cleveland, advertising	89 85	
		172 80
Total expenditures on canal		$13,002 39

CHEMUNG CANAL.

This canal extends from the head of Seneca lake, at Watkins, to Elmira, including the feeder from Horseheads to Knoxville, making a total distance of 39 miles of navigable canal.

The structures are: 2 composite locks, 13 timber locks, 1 timber guard lock, 38 old timber locks, 4 aqueducts, 13 waste weirs, 2 culverts, 1 dam and bulkhead, 3 road bridges, iron; 35 road bridges, wood; 14 farm bridges, 1 towing path bridge, wood; 1 towing path bridge across Chemung river.

The expenditures upon this canal during the fiscal year were as follows:

BY DRAFT ON AUDITOR.

For annual compensation to repair contractor	$25,536 00	
For repairs of breaches by freshet of March, 1865	5,821 35	
For reconstructing lock No. 24	4,855 22	
For reconstructing lock No. 25	4,786 13	
For reconstructing lock No. 28	5,132 45	
For reconstructing lock No. 32	5,437 13	
For Snyder's patent draw-bridge at Cross street, Elmira	917 68	
For Snyder's patent draw-bridge, Fifth street, Elmira	2,176 62	
For improvement at Corning	30,634 00	
For part salary Commissioner	100 00	
For allowance of Canal Board made Dec. 14, 1865, under chap. 722, Laws of 1865, for injury and damage to property of Simeon Hammond and Thomas A. Johnson, in the town of Corning	23,695 13	
For highway bridge, town of Corning	919 44	
For allowance of Canal Board made Dec. 14, 1865, under chap. 720, Laws of 1865, for injury and damage on loss of timber and logs deposited at the mills of Hammond & Johnson, by Charles C. B. Walker and Austin Lathrop, jr	13,416 81	
		$123,427 96

SUPERINTENDENT'S EXPENDITURES.

For superintendent's salary and clerk hire,	$766 64	
For services of inspectors	1,729 00	
For miscellaneous expenditures	33 57	
For repairs of and watching State dredge,	1,186 10	
For raising and protecting banks, by resolution of Canal Board	14,493 85	
For watching guard lock at Gibson's	63 00	
		18,272 16

MISCELLANEOUS EXPENDITURES.

S. B. Fairman, advertising	$21 45
R. A. Hartwell, inspector	162 00
Levi M. Gano, advertising	14 18
Charles Cook, advertising	29 03
Argus Company, advertising	14 18

Dawson & Co., advertising	$14 18	
A. Graves, temporary damages, lock No. 8,	75 00	
A. B. & J. Miner, material for raising banks	75 00	
Alex. Olcott, material for Corning dam	200 00	
Jarvis Lord, under water excavator	175 00	
George W. Pratt, advertising	14 85	
		$794 87
Total expenditures on canal		$142,494 99

ONEIDA LAKE CANAL.

This canal connects the Erie canal with the waters of the Oneida lake, furnishing thirty miles of lake navigation, intersecting the Oneida River improvement, which forms a junction with the Oswego canal at Three River point. The Oneida Lake canal, proper, is six miles in length, and extends from the Erie, at Higginsville, to the head of Oneida lake. The structures are: 7 wooden lift-locks, 2 culverts, 1 towing path bridge, 2 road bridges, 3 lock houses, 4 watch houses, 1 collector's office.

BY DRAFT ON AUDITOR.

For final settlement repair contract	$524 47
For final settlement contract on locks 1, 2 and 4	3,156 75
For final settlement contract on lock No. 3	455 50
Total expenditure on canal	$4,136 72

CHENANGO CANAL.

This canal extends from the Erie canal at Utica to the Susquehanna river at Binghamton—97 Miles. It comprises three repair sections, as follows:

Repair Section No. 1.

This section extends from the junction of the Chenango and Erie canals, in the city of Utica, to the foot of lock No. 81, one mile south of the village of Hamilton, 31 miles. The following reservoirs are located upon it: Madison brook, Woodman's pond, Leland's pond, Bradley's brook, Hatch's lake, Kingsley's brook. and Eaton's brook, all of which are in the southern part of Madison county. Connected with the section are 13¾ miles of feeders. Total miles, canal and feeders, 44¾ miles. The structures are: 77 composite lift-locks, 4 stone lift-locks, 4 wooden trunk aqueducts, 1 stone arch culvert, 1 guard-lock, 12 arch culverts, 7 box culverts, 9 waste weirs,3 iron bridges, 44 wood bridges, 30 bridges on feeders.

The expenditures upon this section during the fiscal year, were as follows:

By Draft on Auditor.		
For annual compensation to repair contractor	$19,573 60	
For wood dam at head of Madison brook feeder, by resolution of Canal Board	234 77	
For constructing Kingsley brook reservoir	30,698 00	
For grouting sluice Eaton brook reservoir and building gate house, by resolution of Canal Board	262 75	
For repairs of embankment of Eaton and Nelson brook reservoirs	2,738 11	
For part salary of Commissioner	25 00	
		$53,532 23
Superintendent's Expenditures.		
For services of inspector	$967 50	
For services of rodman	270 25	
For services of leveler	44 00	
For salary of superintendent	799 98	
For miscellaneous expenditures	20 94	
		2,102 67
Miscellaneous Expenditures.		
Argus Company, advertising	$31 05	
Albany Journal, advertising	14 85	
Carl Brothers & Taylor, advertising	39 15	
Summers & Brother, advertising	30 00	
		115 05
Total expenditures on section		$55,749 95

REPAIR SECTION NO. 2.

This section extends from the foot of lock No. 81 to and including the first farm bridge above lock No. 100; distance 34 miles. The structures are: 18 composite lift locks, 18 wooden trunk aqueducts, 6 waste weirs, 9 bridges on feeders, 3 iron bridges, 60 wooden bridges, 13 arch culverts.

There are six feeders with an aggregate length of four miles, with dams to the length of 1,000 feet.

The expenditures upon this section during the fiscal year were as follows:

BY DRAFT ON AUDITOR.

For annual compensation to repair contractor	$16,400 00	
For part salary Commissioner	25 00	
		$16,425 00

SUPERINTENDENT'S EXPENDITURE.

For part salary superintendent	$450 00	
For miscellaneous expenditures	20 48	
For services of inspector	97 50	
For repairs break in 1865	788 94	
		1,356 92

MISCELLANEOUS EXPENDITURES.

Argus Company, advertising	$70 88	
Dawson & Company, advertising	70 88	
C. W. Perlee, material for repairs breaches 1865	40 00	
Reuben Case, material for repairs breaches 1865	20 00	
Samuel Benedict, material for repairs breaches 1865	25 00	
Andrew Hoxton, material for repairs breaches 1865	50 00	
E. D. Van Slyck, advertising	14 85	
		291 51
Total expenditures on section		$18,073 43

Repair Section No. 3.

This section extends from the first bridge north of lock No. 100 to the junction of the canal with the Chenango and Susquehanna rivers, in the village of Binghamton—distance 32 miles. The Stratton and Chenango Forks feeders are located on this section, the Stratton being about fifty rods in length, with a dam three hundred and fifty feet in length, and having two bridges, one farm, the other towing-path. The Chenango Forks feeder consists of a dam three hundred and fifty feet in length, with a guard lock, having a towing-path bridge across it. The structures are: 1 stone lift lock, 14 composite lift locks, 1 guard lock, 2 dams, 7 waste weirs, 5 wooden trunk aqueducts, 3 iron bridges, 55 wooden bridges, 10 arch culverts, 1 bridge on feeder.

The expenditures upon this section during the fiscal year were as follows:

By Draft on Auditor.

For annual compensation to repair contractor	$12,284 59	
For part salary Commissioner	25 00	
For repairs of breaches in March 1865, as provided by repair contract	10,152 61	
		$22,462 20

Superintendent's Expenditures.

For part salary superintendent	$450 00	
For clerk hire	50 00	
For miscellaneous expenditures	24 48	
For services of inspector	97 50	
For tapeman and rodman	10 00	
For expenses of lock tending, materials and labor for maintaining section during May 1866, (section not under contract),	1,363 39	
		1,995 37

Miscellaneous Expenditures.

Kingsley & Company, advertising	$30 38	
Denison & Fisher, advertising	30 38	
E. D. Van Slyck, advertising	30 38	
Chemung Telegraph, advertising	36 30	
		127 44
Total expenditures on section		$24,585 01

CHENANGO CANAL EXTENSION.

Statement showing the character of work, Engineer's estimate, estimated cost at contract prices, amount done during the fiscal year ending September 30, 1866, for which draft was made on the Auditor; total amount done and remaining to be done on work under contract on the extension of the Chenango canal.

Length in chains.	Character of Work.	Engineer's estimate.	Estimated cost at contract prices.	Amount done during fiscal year.	Total amount done.	Am't remaining to be done.
62	Section No. 1	$13,095	$11,145	$4,400	$7,340	$3,805
71	Section No. 2	57,915	47,980	16,240	16,240	31,740
80	Section No. 3	34,595	33,212	6,060	6,060	27,152
80	Section No. 4	92,670	52,697	2,800	2,800	49,867
90	Section No. 5	56,690	60,555	26,340	30,940	29,615
90	Section No. 6	50,695	49,702	16,860	16,960	32,742
80	Section No. 7	43,095	28,880	16,420	17,000	12,880
80	Section No. 8	21,185	30,000	23,960	26,200	3,800
80	Section No. 9	12,745	17,060	11,160	14,520	2,540
80	Section No. 10	15,430	14,154	1,800	4,620	9,534
76	Section No. 11	30,650	24,180	9,300	9,300	14,880
84	Section No. 12	17,050	18,480	7,000	7,000	11,480
80	Section No. 13	12,130	9,010	7,560	7,560	1,450
80	Section No. 14	14,150	17,500	4,520	4,520	12,980
80	Section No. 15	12,650	15,050	....	....	15,050
80	Section No. 16	22,650	18,150	7,540	7,540	10,610
84	Section No. 17	21,000	27,400	860	860	26,540
88	Section No. 18	57,800	59,600	21,300	21,300	38,300
80	Section No. 19	10,650	13,050	200	200	12,850
80	Section No. 20	23,700	22,000	....	....	22,000
80	Section No. 21	39,650	37,650	....	....	37,656
80	Section No. 22	65,100	60,100	....	....	60,100
84	Section No. 23	12,050	22,600	9,900	9,900	12,700
84	Section No. 24	24,300	29,455	....	....	29,455
82	Section No. 25	12,500	16,100	....	....	16,100
80	Section No. 26	97,300	123,375	2,040	2,040	121,335
80	Section No. 27	11,200	9,756	420	420	9,336
85	Section No. 28	16,700	16,520	....	....	16,520
89	Section No. 29	7,950	9,365	....	....	9,365
80	Section No. 30	11,400	11,866	1,380	1,380	10,486
....	Lock No. 1, 7 feet lift	12,247	11,206	1,220	1,220	9,986
....	Lock No. 2, 7 feet lift	11,872	10,730	1,320	1,320	9,410
....	Lock No. 3, 7 feet lift	12,822	11,996	900	900	11,096
....	Lock No. 4, 9 feet lift	15,355	14,676	2,280	2,280	12,396
....	Lock No. 5, 7 feet lift	12,995	13,696	2,600	2,600	11,096
....	Choconut creek aqued t 4 spaces 22 feet each	13,391	17,370	2,020	2,020	15,350
....	Tracey creek 1 space 22 feet	9,136	10,590	500	500	10,090
....	Apalachin creek 4 spaces 22 feet	13,391	16,587	4,300	4,300	12,287
....	Culv. on Sec. No. 1 to 5 incl.	7,715	9,637	....	....	9,637
....	Culv. on Sec. No. 6 to 10 incl.	9,067	14,340	2,660	2,660	11,680
....	Culv. on Sec. No. 11 to 20 incl.	14,105	22,005	1,640	1,640	20,365
....	Culv. on Sec. No. 21 to 30 incl.	16,695	23,863	....	....	23,863
....	Bridges on Sec. No. 1 to 5 incl.	12,930	20,433	300	300	20,133
....	Bridges on Sec. No. 6 to 10 incl.	18,934	16,225	320	320	15,905
	Total	$1,099,350	$1,120,946	$218,120	$234,760	$886,156

MISCELLANEOUS EXPENDITURES.

Albany Journal, advertising	$16 20
Denison & Fisher, advertising	16 20
William Smyth, advertising	35 70
Carl Brothers & Taylor, advertising	32 03
Kingsley, advertising	16 20
Fairman & Caldwell, advertising	16 20
Truair, Smith & Miles, printing blanks	236 00
Purdy & Jackson, printing blanks	15 00
D. D. S. Brown, printing blanks	12 75
H. A. Beebe, advertising	19 50
Argus Company, advertising	31 73
Dawson & Co., advertising	31 73
Jacob Catlin, moving buildings, sec. 18	1,000 00
C. R. Crocker, moving buildings	50 00
Jacob Kimball, "	220 00
John Morse, "	100 00
John Martin, "	40 00
Alonzo Davis, "	400 00
	$2,289 24
Add amount paid by draft on Auditor	218,120 00
Total expenditures on extension	$220,409 24

IMPROVEMENT AT CORNING.

BY DRAFT ON COMPTROLLER.

For paid contractor on account of work in the Chemung river, at Corning, under chap. 326, Laws of 1865	$15,083 00

LAND DAMAGES.

Statement showing amounts paid on awards made by Canal Appraisers for land damages, for the fiscal year ending September 30, 1866.

Date.	TO WHOM PAID.	Account of what Canal.			
		Erie.	Oswego.	Cay. & Sen.	O. R. Imp.
Oct. 5..	Selick Fairchild	$325 00			
Nov. 10..	James Vrooman	67 25			
	Abram Helmer	75 00			
	A. Fitch and P. Jones	400 00			
	Lucinda Barnard, ad'x	405 00			
	Nelson Cowan*				
11..	H. Ramsay, assignee Samuel Kimbers			$225 00	
Dec. 1..	James Byrne	275 00			
2..	Betsey Dean				$458 48
8..	Electa N. Sweet, administratrix of est. G. C. Sweet		$372 00		
27..	A. Morton, assignee Amanda M. Chapin		468 00		
Jan. 3..	Rhoda Clark and Rhoda Clark, ex., and Silas Clark			90 00	
29..	Daniel Mallett (duplicate)				
Feb. 2..	Mary B. Pelton, adm'x estate Elam Tilden	538 00			
15..	George Brown assignee of William Polney	175 00			
Mar. 9..	Ezra and Mary Pease			450 00	
13..	Mary B. Pelton, adm'x estate Elam Tilden	538 00			
21..	Hiram Lay	950 00			
24..	J. A. & H. Crawford		385 32		
	John Whitewell, executor of James Goodwin			275 00	
31..	David S. Titus			521 50	
	Lorenzo D. Littlefield		791 70		
	Esther Eno, administratrix		159 75		
April 5..	Justin B. Johnson			400 00	
	Levi and Thos. Fatzinger			9,893 87	
	Waterloo Woolen Co			8,723 38	
14..	DeWitt C. Stephens	1,630 00			
	George Yates, administrator J. G. Yates, deceased.	150 00			
	William Ross	500 00			
20..	Isaac S. Westbrook	290 00			
	Ebenezer Munson	1,350 00			
	Peter M. Westbrook	830 00			
	S. & T. W. Compson	640 00			
	John Dutcher.	200 00			
	Thomas Connor			200 00	
27 .	T. Gale & J. Forger		1,532 18		
28..	Carlton Burroughs	130 00			
	Alexander G. Coon	466 80			
	David Crowell	200 00			
	Lyman F. Crowell	200 00			
	Lucinda Kipp	275 00			
	Allen Tubbs	395 00			

Payments on awards made by Canal Appraisers—Continued.

Date.	TO WHOM PAID.	ACCOUNT OF WHAT CANAL.			
		Erie.	Oswego.	Cay. & Sen.	O. R. Imp.
April 28..	John Stacy	$270 00			
	Jno. W. Sherman	1,340 00			
	J. Bocker & Ulrich Conrad.	350 00			
	Daniel B. Gay	800 00			
	Joseph Snyder	720 00			
	Joseph Armitage	1,200 00			
May 4..	James H. Lay	1,500 00			
	John G. Evans	1,200 00			
	James Carris	220 00			
	Estate Lovinia Helmer	900 00			
	Hiram Woodworth	800 00			
	Martin Lane	500 00			
	W. H. & E. D. Lay	150 00			
	W. H. & E. D. Lay	1,590 00			
10..	Clinton L. Colton	540 00			
	Sophia Powis, Henry Powis, Sophia and Louisa Powis, executrix	250 00			
	Erastus Dutcher	300 00			
11..	William Kline	800 00			
	W G Woodworth	900 00			
	Ulrich Conrad	240 00			
	M. Van Kirk & Martin Lane	600 00			
	Thomas Van Buskirk	450 00			
	John Van Buskirk	960 00			
	Otis Williams and L. Baker	350 00			
	Estate Jacob Nearpass	920 00			
	Jason Smith	530 00			
	Thomas Smith	850 00			
14..	Estate David Morehouse	100 00			
	J. W. Compson	660 00			
	Sarah Maddock				$577 00
22..	Avery & Gillett		$3,142 66		
	Thomas Doyle		6,283 00		
	Michael E. Lynch		7,857 00		
	Amos L. Mason		4,050 00		
	James Griffin		3,142 66		
	James Lynch		11,928 00		
	W. S. Nelson		184 00		
	J. Cowley & Co.		3,142 66		
	Ford & Slatterly		4,714 00		
	Thomas Comeford		3,141 66		
	Michael Murray & Co.		9,428 00		
	William Dunn		1,590 00		
June 1..	Harriet N Washburne		223 50		
2..	Henry Sparling	100 00			
4..	Margaret Buckley			$2,340 00	
	Richard Sanger		1,100 00		
	P. C. Clifford				850 00
	S A. Covell				1,722 00
	Geo. W Covell				1,982 00
	Betsey Covell				950 00
	G R. Dickinson				478 00
	Henry Deyo				2,125 00
	Hervey Eggleston				449 00
	Linas Haskins				1,804 00
	Wm McClanathan				2,890 00
	Alanson Post				1,370 00
	James H. Peacock				319 40
	Hugh Quinn				2,450 00
	Solomon Rathburne				1,128 00
	D C. Stevens				1,000 00
	Noah Waddams				1,092 00
	Ira Bushnell				430 00

Payments on awards made by Canal Appraisers—Continued.

Date.	TO WHOM PAID.	ACCOUNT OF WHAT CANAL.			
		Erie.	Oswego.	Cay. & Sen.	O. R. Imp.
June 4..	Henry Hart				$144 00
	Timothy Chapman				140 85
	Joseph Halsted				558 00
	Seba Mead				292 50
	Eliphas Chapman				198 40
	John Winn				148 00
	Peter Lutzee				159 00
6..	Julia Osborne	$124 80			
	Ichabod Goodfellow	100 00			
14..	David Barry	830 00			
	Aveline Beer		$2,550 00		
	Chloe Kelsey				273 00
28..	Ezekiel Freeland and wife			$100 00	
29.	George Mitchell		351 00		
July 2..	Patrick Moran	661 61			
	Jefferson Bishop	50 00			
	John B. Dixon			50 00	
	Fanny E. Reed and heirs of Sam. Foot, deceased		145 63		
25..	Levi Rogers				110 00
Sept. 1..	John Copeland	1,680 00			
13..	Heirs E. A. Ely				40,00
	Totals	$33,546 46	$66,662 72	$23,268 75	$24,138 63

FINAL RECAPITULATION.

ERIE CANAL.

Total expenditures on section No. 7	$15,336 37	
Total expenditures on section No. 8	27,639 35	
Total expenditures on section No. 9	32,755 71	
		$75,731 43

OSWEGO CANAL.

Total expenditures on section No. 1	$29,252 60	
Total expenditures on section No. 2	133,672 25	
		$162,924 85

BALDWINSVILLE CANAL.

Total expenditures	$12,996 68

ONEIDA RIVER IMPROVEMENT.

Total expenditures	$200 00

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* Account of Chemung canal, $474.16, and $500 = $974.16.

CAYUGA AND SENECA CANAL.

Total expenditures $18,811 47

CROOKED LAKE CANAL.

Total expenditures $13,002 39

CHEMUNG CANAL.

Total expenditures $142,494 99

ONEIDA LAKE CANAL.

Total expenditures $4,136 72

CHENANGO CANAL.

Total expenditures on section No. 1	$55,749 95	
Total expenditures on section No. 2	18,073 43	
Total expenditures on section No. 3	24,585 01	
		$98,408 39

CHENANGO CANAL EXTENSION.

Total expenditures $220,409 24

IMPROVEMENT AT CORNING.

Total expenditures under chap. 326, Laws of 1865. $15,083 00

LAND DAMAGES.

Total on account of Erie canal	$33,546 46	
Total on account of Oswego canal	66,662 72	
Total on account of Cayuga and Seneca canal	23,268 75	
Total on account of Oneida River improvement	24,138 63	
Total on account of Chemung canal	974 16	
		$148,590 72

ITHACA INLET.

For removing obstructions $930 53

WESTERN DIVISION.

The Commissioner in charge of the Western Division respectfully presents the following report, for the year ending September 30, 1866:

The Western Division of the canals consists of that part of the Erie canal from the east line of Wayne county to and including the canal and canal basins and slips in the city of Buffalo, and the Genesee Valley canal.

This division of the canals for superintendence and repairs is divided into eight repair sections, five being upon the Erie and three upon the Genesee Valley canal. Those upon the Erie canal are sections Nos. 10, 11, 12, 13 and 14, and those on the Genesee Valley canal are Nos. 1, 2 and 3.

Sections 10 and 11 of the Erie canal were in charge of E. B. Strong last season, and he is the present superintendent.

Sections 12, 13 and 14 remain in charge of Chester F. Shelly.

Section 1, Genesee Valley canal, remains in charge of John L. Burleigh.

Section 2 was in charge of Ebenezer Kingsley until February 1st; since then it has been in charge of Elijah Young.

Section 3 is in charge of Hiram Wakely.

The engineer department has been in charge of Orville W. Story as division engineer until the 1st of July last. Since that date there has been no division engineer. W. W. Jerome has been resident engineer for the past year.

ERIE CANAL.

Repair Section No. 10.

This section is 42 miles long, and is embraced within the limits of Wayne county. It is under contract to be kept in repair by Chester B. Thomas, at the rate of $19,375.20 per annum until the 1st of January, 1867.

The following are the mechanical structures on the section: 23 timber road bridges; 11 iron road bridges; 9 timber farm bridges, 3 waste weirs; 3 composite culverts; 19 stone culverts; 1 discharge culvert; 10 stone locks—of which 8 are single; 2 aqueducts; 4 lock houses; 9 watch houses; 1 workshop and shed.

No new structures have been added the past year.

There has been no serious detention to navigation upon this section since last report. Navigation was suspended three days and a half by the failure of part of the side of the Palmyra aqueduct.

The expenditure on account of repairs during the fiscal year has been as follows:

To paid by drafts to repair contractor on contract	$19,375 20
To paid by draft to repair contractor for improvements on lock valves	515 54
Payments by superintendent:	
To paid agents for dispersing crowd of boats	38 00
To one-half superintendent's salary and contingent expenses	509 99
Total	$20,438 73

Repair Section No. 11.

This section is thirty-eight miles long, and extends from the east line of Monroe county to the west line of construction section No. 284, in the village of Brockport.

It is under contract to be kept in repair by Byron M. Hanks, to whom it was let for four and one-sixth years from the 1st day of November, 1862, at $19,040 yer year.

The following mechanical structures are upon this section: 6 lift-locks, 1 guard-lock, 1 weigh-lock, 2 stop gates, 1 aqueduct, 6 waste weirs, 41 culverts, 2 wooden farm bridges, 13 wooden road bridges, 23 iron road bridges, 3 wooden tow-path bridges, 1 iron tow-path bridge, 4 lock houses, 1 work shop, 5 watch houses, 1 dam. No new structures have been added the past year.

The tow-path bank near the four mile grocery west of Rochester, has been in an unsafe condition; it was partially secured in the spring of 1865, at a cost of $3,292.06, and additional work was done last spring at a cost of $3,329.78. The bank is now deemed safe.

No serious detention to navigation has occurred upon this section. The superintendent reports the following detentions or obstructions to navigation: Sunken boat in Brighton lock, and small breach near Pittsford—about two days suspension.

The sum of $31,973.36, included in the schedule of expenditures upon this section, was paid to the repair contractor, it being the balance due him of an award made by the Canal Board, authorized and directed by the Legislature. The payment was for repairing the large break at Oxbow basin, near the village of Fairport.

The cost of operating this section has been as follows, including awards of Canal board:

To paid repair contractor by drafts, on contract	$19,040 04
To paid repair contractor by draft, for repairs of Oxbow bank in November 1864	31,973 36
To repair contractor by draft, for repairs of breaks occasioned by great flood in March 1865	5,984 16
To repair contractor by draft, for protecting bank at four mile grocery	3,329 78
To paid for testing weigh lock scale, Rochester	25 00
To paid for services in facililtating passage of boats at Rochester weigh lock	88 00
To paid Oliver Culver, temporary occupation of land,	60 00
Payments by superintendent:	
To paid for stone and placing same on Oxbow embankment	4,814 45
To paid contractor for improvements about weigh lock and reconstructing tow-path bridge embankment with protection	3,429 59
To one-half superintendent's salary and contingent expenses	510 00
Total	$69,254 38

Repair Section No. 12.

This section is thirty miles long, and extends from the west end of construction section No. 284 (in Brockport) to the west line of the county of Orleans. It is now under contract for repairs to Edward A. Mills, for four and three-fourths years, from April 1, 1862. The annual compensation is $10,117.

The following are the mechanical structures upon the section:

Seven waste weirs; forty three culverts; twenty wood road bridges; eleven iron road bridges; three wood farm bridges; one aqueduct; one bulkhead for Medina feeder; one dam for same feeder.

The culverts upon this section have nearly all been reconstructed or thoroughly repaired.

The excavation of the channel of Oak Orchard creek is nearly completed. I advised the contractor that the funds appropriated to complete this work were exhausted, but he preferred to complete the contract on his own responsibility. To pay him will require an appropriation to the amount of seventeen thousand five hundred dollars.

The cost of maintaining this section for the year has been as follows:

To paid repair contractor for contract, by drafts....	$9,954	38
To paid repair contractor by superintendent, work done by him chargable to contractor	162	61
To paid repair contractor for protecting and securing bank near road culvert, by draft...............	972	13
To paid repair contract for securing banks and removing old culvert (near Shelby basin), by draft.	2,794	50
Payments by superintendent:		
To paid temporary occupation of land	25	00
To one-third superintendent and clerk's salary	493	33
Total	$14,401	95

There are no locks upon this section, and there has been no detention to boats.

Repair Section No. 13.

This repair section is twenty-six miles long, and extends from the west line of Niagara county to Pickard's bridge, over the Tonawanda creek.

This section was let to N. S. Osborn, for three years and three months, from the first day of October, 1864, at the rate of fourteen thousand four hundred dollars per year.

The following are the structures upon the section:

Twenty-one culverts, two State races, four waste weirs, ten combined stone lift locks, one stone guard lock, seventeen wood road bridges, thirteen iron road bridges, two wood farm bridges, one iron tow path bridge, four wood tow path bridges, one stop gate, one lock and toll house.

No new structures built during the year, except the last mentioned item.

Quite a serious detention to navigation occurred on the 13th of October, by the failure of a waste weir at Gasport. Navigation was suspended four days, and the effect, aside from obstructing navigation, was felt during the balance of the season, by crowds of boats at the locks.

The replacement of the waste weir was necessary upon a change of plan, and cost the State, over and above the sum of $5,000, charged the contractor, $7,239.36.

The payments on account of this section the past year have been as follows:

To paid repair contractor on contract, by drafts	$11,423	32
To paid repair contractor on contract, by boat built for use of section by Commissioner	1,400	00
To paid repair contractor on contract, by superintendent, work done by him and charged to contractor	556	68
To paid repair contractor, by draft, for repair of Gasport break in October, 1865, according to terms of contract	7,239	36
Payments by Superintendent:		
To paid for building for collector's office and lock house	1,029	19
To paid lock tenders	738	64
" for removing boulders from Tonawanda creek	42	50
" " docking at Pendleton	94	50
" " rebuilding new House bridge abutment	963	33
" " cutting recesses in Lockport locks	353	92
" " guard on waste weir, lower Lockport	63	23
To paid for general repairs on section while in charge of superintendent, 1864	139	68
Sundries	54	31
To paid one-third superintendent's and clerk's salary	493	33
Total	$24,591	99

Repair Section No. 14.

This section is seventeen miles long, and extends from Pickard's bridge across the Tonawanda creek, to and including the slips and basins in the city of Buffalo.

The section is now under contract with Andrew Spaulding, to be kept in repair three years and three months from the first of October, 1864, at the annual compensation of $24,970.

The following structures are upon this section:

Twenty-two iron road bridges, five wood road bridges, four wood farm bridges, three iron tow path bridges, four wood tow path bridges, one iron swing bridge, one wood tow path draw bridge, Black Rock pier, breakwater and jetty pier in Erie basin, three culverts, three locks, two dams, two waste weirs and two spillways.

The tow path bridge at Bird street was removed to a more eligible locality. The large amount of business done in that vicinity, and the heavy loads carried over the bridge endangered its safety. It was originally built for a road and tow path bridge. A more suitable road bridge has been constructed in its place, authorized by chap. 82, Laws of 1866.

The repairs of the very extensive breaks at Tonawanda, occasioned by the great flood of March, 1865, have been completed, with the exception of an iron bridge which was carried from the village into Niagara river.

The construction work between Tonawanda and Buffalo has been completed, having been in progress nearly seventeen years. This work has been very difficult to perform, and its delay has been very embarrassing to navigation

Upon this section a portion of the tow-path bank, known as construction section 368, was very badly built, and upon a defective plan. The rock is so near the surface that piles cannot be driven upon which to build a timber or stone wall; the only feasible plan is to excavate the earth to rock and sink timber cribs. The old work is failing rapidly, and the replacement of it by the contractor upon the original plan is a waste of time and money. It is a work necessary to keep up navigation, and should be done without delay. The estimated cost is $64,800.

The expenditures on account of repairs upon this section the past fiscal year, have been as follows:

To paid repair contractor on his contract, by drafts	$24,970 00
To paid repair contractor for repairs of Tonawanda break, by drafts	815 00
To paid repair contractor for reconstructing on change of plan, Amherst and military road bridges, by draft	1,576 39
To paid repair contractor for use of tools, &c., in repairs of Tonawanda break, by draft	380 90
To paid repair contractor for securing docking slip No. 2, by draft	647 32
Payments by superintendent:	
To paid repairs of Tonawanda break of March, 1865	29,036 44
To paid for lowering military road bridge, Tonaw'da	148 65
To paid for engineering and foreman services, Tonawanda break	972 00
To paid for new gearing Scajaquady draw-bridge	250 00
To paid for boat inspector and lock tender	1,594 13
To paid for new openings and valves Tonawanda lock	99 21
To sundry payments	34 00
To paid for removing tow-path bridge and building same in another locality, lower Black Rock	2,404 40
To paid for constructing road bridge in place of tow-path bridge removed, under chapter 82, Laws of 1866	4,095 00
To one-third superintendent's and clerk's salary	493 34
Total	$67,516 78

GENESEE VALLEY CANAL.

This canal extends from the Erie canal, in the city of Rochester, to the Allegany river, at Milgrove, 113 miles. The Dansville side cut commences at the Shaker aqueduct, near Mount Morris, and extends to Dansville, a distance of eleven miles.

REPAIR SECTION NO. I.

This section is fifty-two miles long, and extends from the junction of the Genesee Valley canal with the Erie canal at Rochester to the terminus of the Dansville side-cut at Dansville. It was let for three and one-quarter years, from the first day of October, 1864, to Wm. W. Reed, at the rate of nineteen thousand four hundred dollars a year.

The mechanical structures upon this section are as follows:

Nineteen lift locks, three guard locks, four dams, three bulkheads, eight aqueducts, fifty-seven culverts, fifteen waste wiers, forty-five road bridges, sixty-two farm bridges, three tow-path bridges and eleven lock houses.

The expenditures, chargeable to repair fund for fiscal year, have been as below noted:

To paid repair contractor on his contract, by drafts	$19,416 02
To paid repair contractor for repairs of breaks occasioned by flood of March, 1865, by drafts	34,630 00
To paid N. B. T. Jones, of Wheatfield, for bridge commutation	305 00
Payments by superintendent:	
For salary and contingent expenses	802 69
Total	$55,153 71

Repair Section No. 2.

This repair section is thirty-six miles long, and extends from the junction of the canal with the Dansville side-cut, at the Shakers' settlement, to and including the Genesee River feeder at Oramel.

The mechanical structures upon this section are the following:

Sixty-one lift locks, one guard lock, one dam and bulkhead, seven aqueducts, thirty culverts, nine waste wiers, thirty-five road bridges, twenty-eight farm bridges, four tow-path bridges.

This section is now under contract with Samuel Price, to be kept in repair until January 1, 1868, for an annual compensation of $17,000.

Since my last report five stone locks have been constructed upon this section; the expenditures made thereupon will be noted under the head of extraordinary repairs. Several of the locks will require reconstruction during the coming winter, but as there was no appropriation made by the Legislature for that purpose, as requested by the Commissioner, they must be rebuilt of wood.

A special appropriation should be made of $15,000 for constructing an earth canal in place of the south wood trunk at Portage, the rebuilding of which is excepted from the repair contract.

Navigation was not commenced upon this section until the 25th of May, in consequence of the stone locks not having been completed as contemplated by the contract made for their construction.

For the past fiscal year payments for repairs upon this section have been as follows:

To paid repair contractor on contract, by draft	$13,245 87
To paid repair contractor for deficiency in tools, advertised and paid for by him, by draft	782 29
To paid for advertising letting of section, having been twice advertised	292 97
To paid for constructing culvert in town of Hume, by drafts, directed by chapter 521, Laws of 1865	1,500 00
To paid for advertising letting of culvert above mentioned	46 36
Payments by superintendents:	
For expenses of section while in charge of superintendent	7,140 41
To building earth canal in place of trunk aqueduct..	2,606 08
To repairs of breaches in canal banks............	1,129 51
To removing wall near trunk aqueduct at Portage...	215 68
To superintendent and clerk's salary.............	980 00
Total	$27,939 17

Repair Section No. 3.

This section is thirty-eight miles long, and extends from the south bank of the Genesee river, at Oramel, below and including lock No. 72, to the Allegany river at Milgrove pond.

The following mechanical structures are upon the section:

Thirty-four locks, one guard lock, four aqueducts, fifteen waste weirs, twenty-three culverts, thirty-seven road bridges, fourteen farm bridges, one tow-path bridge, two road and change bridges.

The section is now under contract with N. Stanton Gere until the 1st of January, 1868, at a contract price of $9,990 per year.

The payments chargeable to repairs upon this section for the past fiscal year, have been as follows:

To paid repair contractor on his contract, by draft	$8,491 56
To paid repair contractor deficiency in tools, by draft,	174 05
To paid repair contractor for protecting canal in various localities, by draft	2,063 94
To paid late repair contractor for percentage retained, by draft, $726.75, being retained by Commissioner for works neglected to be performed by contractor, and which were a charge against the State	945 65
To paid for advertising letting of section, being twice advertised	292 97
To paid Robert Ramsey for building bridge in town of Belfast, directed by chapter 523, Laws of 1864	400 00
To paid Luman Rice, of Portville, for commutation of farm bridge	100 00
To paid Russel Smith for constructing bridge over Champlain creek, authorized by Canal Board Nov. 1865	122 54
Payments by superintendent:	
For expenses of section while in charge of superintendent	2,872 17
To repairs of breaches	1,735 34
To building lock house at Olean, deducted from former contractor's pay	650 00
To superintendents, clerk salary and contingent expenses	930 00
Total	$18,778 22

Expenses of General Management.

Commissioners' salary and travel	$2,400 00
Clerk hire, office rent and contingent expenses of office in Buffalo	2,530 59
Salary of clerk of the Contracting Board and Canal Commissioners, with contingent expenses of the Albany office, for a portion of the fiscal year	1,057 57
Expenses of Canal Board excursion on a tour of inspection of the Erie canal in 1865	718 80
	$6,706 96

ENGINEERING.

On account repairs Genesee Valley canal	$2,646	50
On account repairs Erie canal	4,160	55
	$6,807	05

ENLARGEMENT ERIE CANAL.

Drafts and certificates in payment of awards for land damages, made by Appraisers and Canal Board	$59,280	97
Payments in cash for temporary occupation	975	00
Drafts for interest on deferred payments to contractors	60,713	00
	$120,968	97

CONSTRUCTION GENESEE VALLEY CANAL.

Drafts and certificates in payment of awards by Appraisers and Canal Board, for land damages	$14,037	75
Payment in cash, temporary damage	105	75
Drafts for interest on deferred payments to contractors	2,367	00
Payment to Engineer for making maps	135	00
	$16,645	50

EXTRAORDINARY REPAIRS.

Payments by Commissioner:

Payments made on account of Oak Orchard creek improvement, by drafts	$13,915	16
Payments made on account of Oak Orchard creek improvement, in cash	190	00
Payments made on account of sewer in Clyde, by drafts	4,429	88
Payments of awards to contractor for sewer in Clyde, by drafts	4,298	91
Payments on account of bottoming sec. 312, by drafts,	526	88
Payments made on account of bottoming sec. 315, by draft	701	22
Payments made in cash, temporary damages	320	00
Payments on account of securing culvert, repair section No. 12, by draft	194	09
Payments made on account of Clark & Skinner, canal, by draft	5,147	50
Payments made on account of raising and securing banks, section 10, Erie canal, by draft	1,798	74

Paymnents made on account of construction, sections 362, 363, 364, 365, 366, Erie canal, by draft	$95,794 50
Payments made on account of Erie Basin improvement, by draft	2,554 12
Payments made on account of Erie street bridge, by draft	3,808 00
Payments made on account of Black Rock Harbor improvement, by draft	2,109 00
Payments made on account of Commercial Street bridge and tow path bridge, by draft	650 00
Payments made on account of advertising work for letting, in cash	260 33
Payments made on account of engineering and inspecting, in cash	1,918 75
Payments made on account of Pickard bridge, temporary damage, in cash	25 00
Payments made by Superintendent:	
Payments made on account of improvement Black Rock pier	673 49
Payments made on account of Main and Hamburgh Street canal	2,498 00
	$141,813 57

LOCKS OF STONE, GENESEE VALLEY CANAL.

Authorized under act. chap. 170, Laws of 1864.

Payments by drafts to contractors	$59 008 00
" in cash for engineering and inspecting	1,199 65
" " for temporary occupation	150 00
	$60,357 65

SUMMARY OF PAYMENTS.

Payments for repairs, sec. 10, Erie canal		$20,438 73
" " " 11, "		69,254 38
" " " 12, "		14,401 95
" " " 13, "		24,591 99
" " " 14, "		67,516 78
" " engineering,		4,160 55
Total Erie canal		$200,364 38
Payments for repairs, sec. 1, Genesee Valley canal	$55,153 71	
Payments for repairs, sec. 2, Genesee Valley canal	27,939 17	
Payments for repairs, sec, 3, Genesee Valley canal	18,778 22	

Payments for engineering Genesee Valley canal	$2,646,50	
		$104,517 60
Payments on account of general management		6,706 96
Total payments on account of repair management,		$311,588 94

Erie and Genesee Valley Canal.

Payments on account enlargement Erie canal	120,968 67
Payments on account construction Genesee Valley canal	16,645 50
Payment on account extraordinary repairs	141,813 57
Payments on account stone locks, Genesee Valley canal	60,357 65
Total payments on all accounts	$651,374 33

Expenditures—Repairs.

The total payments debited to account of repairs on the Western Division, for the fiscal year 1865, amounted to five hundred and forty-six ($546,174.36) thousand one hundred seventy-four dollars and thirty-six cents. The amount so charged to the fiscal year 1866, is three hundred and eleven thousand ($311,588.94) five hundred and eighty-eight dollars and ninety-four cents, a difference in favor of 1866 of two hundred and thirty-four thousand (234,-585.42) five hundred and eighty five dollars and forty-two cents.

Of the gross expenditures of the past fiscal year, the sum of one hundred and twenty-nine thousand ($129,477.14) four hundred and seventy-seven dollars and fourteen cents was paid for awards made by the Canal Board for repair of breaches, and for new work not properly chargeable to repairs.

Nearly all of the payments for repairs of breaches were for liabilities accruing prior to the fiscal year of 1866. Less than ten thousand dollars was paid for such accidents occuring within the fiscal year. Fifteen thousand dollars will be ample to discharge all the liabilities of the State for repairs of this character yet unmade, and in balances on accounts unclosed.

The Commissioner feels much gratification in announcing that he had on hand sufficient funds at the end of the fiscal year to close up his current accounts, and that no money will be required to cancel arrearages of the year 1866.

There are but five contracts outstanding upon the entire division upon which work remains to be done. Three are for removing earth and rock from the prism of canal on construction sections 291, 292, 294, 295, 296, 321 and 322. Sufficient means are in hand to pay for the work, which is intended to be done by the opening of navigation next spring, viz: the improvement of the channel of Oak Orchard creek, and the construction of of an iron bridge on Erie street, in the city of Buffalo. Probably there has been no date in the history of our canals, upon this division, when so clean a *balance sheet* has been presented.

There are no large expenditures asked for or necessary to preserve navigation upon the Erie canal, except the building of a tow path bank, noted under the head of section 14, unless the Legislature should deem proper to make special provision for strengthening canal banks which give signs of insecurity by water leaching through them, and to raise and fill out the banks to the original height and width contemplated in the plan of enlargement.

The incidental work recommended will be found under the head of extraordinary repairs.

But the Legislature should now make special and ample provision for keeping up good and secure navigation upon the Genesee Valley canal. To do this requires a large sum of money which ought to be immediately appropriated. In my first annual report, in 1862, I called attention to this canal, and used the following language:

"The Genesee Valley canal was built 42 feet wide upon the surface, 26 feet wide on bottom, and to hold four feet of water. There is no vertical or slope wall on the canal, and consequently in many places the banks have slid in to so great an extent that loaded boats can not pass each other. The boats on the canal average fourteen feet in width, so that were the canal in good condition it would then be difficult for two boats to pass each other. It now happens, in some instances, that loaded boats, when meeting, one or the other is obliged to retrace its course until a place wide enough is found to pass. Such places should be widened at the expense of the State, and by using ten thousand dollars a year judiciously for five years, navigation would be materially improved. The locks of the canal are of three kinds, some all wood, some composite, and some stone. Many of the wooden locks are in a miserably dilapidated condition, and must be soon rebuilt.

"The waste weirs have been extensively repaired and brought into use; the most of them had been filled up, being insecure, and not available for the purposes designed.

"The aqueducts are in fair preservation. The culverts seem to be well built, but there are not enough of them. At places small streams run into the canal where they are not needed as feeders, thus filling it with deposit and endangering its safety by floods.

"The detentions have been numerous, rendering navigation very uncertain and difficult. A few of the causes of those detentions have been removed, but the principal remedy is additional feeders or reservoirs to furnish a greater supply of water than is now afforded.

"The two trunk aqueducts at Portage are getting unsafe, and should be removed and earth embankments constructed in their stead. This work is proper, and will cost $18,000. At least three locks must be rebuilt the coming year.

"To build them of stone would cost nearly $25,000; the cost of wood locks would be about $16,000.

"The business of this canal has largely increased the past season. A fair proportion of the increase is by reason of its connection with the Allegany river. Milgrove is but twenty-eight miles from the great coal fields of McKean county, and this canal seems the natural channel for bringing coal to market.

"It may become one of the most important tributaries to the Erie, and good faith requires that it should be kept in navigable condition.

"The canal is now in a much better condition than in the spring, and, while it is hoped that it is in an improving condition, it is but just to state that it still bears the evidence of many years' neglect."

Since the date of that report it has required a very large amount of money to replace and repair the canal, it having suffered from three terrible floods, and it seemed almost impossible, during this time, to get it into fair navigable condition. So much expenditure being necessary for the above purposes, there were no means left to make any effectual or perceptible improvement in its navigation, except such as has been effected through increasing the capacity of the Cuba reservoir and placing a new dam across the Ischua feeder.

The narrow channels still remain, but little improvement having been made in that direction. But one new culvert has been added.

The aqueducts at Portage are in the same condition. But five new locks have been built.

The narrow channels have proved a source of great embarrassment the past season, as they have prevented the passage of water needed for feeding the canal below them. It frequently happened that boats meeting in those localities grounded, and stopped navigation for a long distance beyond them.

The removal of such banks is of the first importance; at least fifteen thousand dollars should be used during the winter and spring for that purpose.

To keep navigation constant throughout the season, will require an additional reservoir upon section three. Under act of Legislature a survey has been made and the maps and plans adopted by the Canal Board. I have frequently urged for an appropriation to carry out this project, the estimates demand one hundred ($160,000) and sixty thousand dollars.

One of the trunk aqueducts at Portage is in a very unsafe condition, and an earth canal should be constructed to take its place. Seven thousand dollars were expended during the fall of 1865, in that direction, and the work would have been continued the past season if there had been sufficient means to warrant it in the appropriation for repairs. Twelve thousand dollars should be allotted for this work.

The Ischua feeder is not of sufficient capacity to carry the water necessary to feed with. The aqueduct over Oil creek is not large enough or otherwise fitted for the purposed use; at least twenty thousand dollars will be required to perfect this work.

At least three new locks should be built during the winter and spring of 1868. They cannot be built the coming winter, as no provision has been made for stone, which cannot be got upon the ground during suspension of navigation. There are other works of importance which require immediate attention, but not so prominent as to require detailed mention here.

I earnestly recommend and advise that the sum of two hundred and fifty thousand dollars be placed in the hands of the Canal Board for the improvement of this canal.

It is the longest of the lateral canals, and the opinion expressed in my first report that it was the natural channel for the McKean County coal to find a market, seems to be, in a fair way of realization, as recently nearly four hundred tons of coal have been transported over the canal, and I am assured that if the canal can or will be kept constantly navigable, that at least forty thousand tons will be shipped thereon next year, thus commencing a trade and commerce of much importance to the people, and assisting in increasing the revenues of the Erie canal as well as the Genesee Valley canal.

In my report of last year, I attacked the present system of canal management, and should again take occasion to call the attention of the Legislature specifically to what I deem defects. But it is believed that we shall soon have a constitutional convention, when the obsolete ideas of other days, and the chimerical ones of the present, will be superseded. I am also aware that the Legislature of last winter, in view of an early convention, did not deem proper to attempt any radical changes. The preservation and efficient management of our noble system of State canals, is a matter of deep concern to the commercial and industrial classes of the State, and their interests demand a speedy rescue from the weak and uncertain systems the canals are subjected to; systems that are detrimental to the best interests of the State and *contemptible* in nearly every aspect.

EXTRAORDINARY REPAIRS.

Under this head a large amount of new work has been done which properly belongs to the construction account of the canals, and in no sense should be classed as repairs. Such a fund is necessary and requisite, unless the ordinary repair fund should be increased and ample jurisdiction found to authorise its expenditure for new works.

Under the head of payments of "extraordinary repairs," will be found a detailed statement of the drafts made upon that fund.

No appropriation was made last session for the Oak Orchard creek improvement, nor for the Clark and Skinner canal. The contractor on the former work has continued the same towards completion.

Under chapter 719, Laws of 1866, improvements have been made in the Erie basin, the Main and Hamburgh Street canal, Black Rock harbor, in constructing a bridge on Erie street, in the city of Buffalo, and the construction work between Black Rock and Tonawanda completed.

The appropriation under the aforesaid act for the improvement of the Erie Basin has been exhausted. The work consisted in removing large boulders and excavating a channel, as originally contemplated in the plan of said basin. This basin is an important and valuable adjunct to the Erie canal, and should be put in proper shape to permit "the interchange of cargoes between canal boats and lake craft." I respectfully advise an appropriation of eight thousand dollars to be expended during the coming season of navigation.

The Main and Hamburgh canal connects the Erie canal with the Clark and Skinner and Ohio basin slips; it has been improved to a considerable extent, but to make a passage-way and canal *suitable* for the large amount of business done upon it, at least fifteen thousand dollars are immediately needed.

Black Rock harbor has been very materially improved by grouting and stopping leaks in the pier; the head of water has been increased, and thus has sensibly benefited navigation between Black Rock and Montezuma marshes, the harbor being the feeder for the long line of canal intervening.

A new iron bridge is in course of erection on Erie street in the city of Buffalo, the present bridge not being suited for that locality.

The construction work between Tonawanda and Black Rock has been completed, having been in progress nearly seventeen years. This work has been difficult to execute, and the long delay therein has been very embarrassing to navigation; it is a matter of congratulation that so large a source of annual expenditure has ceased.

As noted in the detailed statement of section 14, there should be an appropriation for the tow-path bank.

Black Rock harbor has been rapidly filling up from the filth and sediment from Buffalo creek and the city of Buffalo. To prevent rapid encroachments from this quarter, it is advised by the Engineer Department that a jetty pier be constructed at right angles with the harbor and above its entrance, that the current may be directed into the river instead of the harbor. The estimated cost of the proposed pier is $7,500.

The Legislature directed the Canal Commissioners last winter to cause several improvements to be made, but not making appropriations recognized by disbursing officers, they have not been able to discharge the duties thus imposed.

I refer to chapter 899, directing the raising of the berme and tow-path banks in the city of Rochester; to chapter 639, directing improvements to be made in the Genesee River feeder dam; to chapter 584, directing an iron bridge to be built on Main street, in the city of Buffalo; to chapter 729, directing the building of a sewer in the town of Lockport.

The first three acts required the Auditor to pay from Canal funds; the last, the Comptroller from the General fund. It is but just to say, that the Comptroller regretted that he could not consistently pay my drafts, because the General Fund was largely in arrears.

The requirements of chapter 870, have not been fully discharged. It was found, after careful investigation, that the improvements contemplated in said chapter, could not be realised until a dam across Beard's creek should be removed.

The dam had been built by private parties, and the Commissioners, acting under the advice of the Attorney General, caused the dam to be removed, and propose to carry out the purposes of the act.

For the same reasons above expressed, the directions of the Legislature of 1865—as found detailed below—have not been complied with.

Chapter 667, provides for constructing a bridge over the Erie canal, between the counties of Erie and Niagara.

Chapter 675, provides for constructing a bridge over the Clark and Skinner canal, in the city of Buffalo.

Chapter 682, directs a bridge to be built over Black Rock harbor.

Chapter 685, directs a farm bridge to be built in the town of Gates, Monroe county.

Chapter 711, directs a culvert to be constructed in the town of Barre, Orleans county.

It should be understood that unless money be provided to pay for works ordered by the Legislature—other than from repair funds—their directions cannot be complied with. As many of the works above specified are of importance, and should be executed, the necessity of an extraordinary repair fund is apparent.

It has been decided that the repair contractors are not required to go beyond the blue line of the canals, except in case of bridge embankments—therefore there are instances where the ditches made in lieu of culverts, or to connect with culverts, for the purpose of draining lands flooded by the building of the canals, have been filled up, and, resisting the free passage of water, destroy much valuable property, which the Appraisers are making awards upon.

There should be power vested in the Canal Board, or Canal Commissioner, to construct culverts and open the drains. I have asked for an appropriation to build culverts for such purposes, knowing them to be necessary to protect and preserve, not only valuable lands, but the health of near inhabitants.

The following sum of money is asked for as an extraordinary repair fund:

For the Erie basin work	$8,000
For the Oak Orchard creek improvement	17,500
For the Clark & Skinner improvement	12,000
For the Main and Hamburgh canal	15,000
For the Black Rock harbor	5,000
For the Main street iron bridge, Buffalo	8,000
For raising canal banks in Rochester	28,000
For sewer in Lockport	12,000
For improvement of Beard's creek	5,000
For culvert at Tonawanda	3,500
For culvert in town of Barre	3,500
For culvert in the town of Clyde	4,000
For strengthening banks and changing plan of bridges	25,000
For Genesee Valley canal	250,000
For tow path, section 361	64,800
For Black Rock harbor jetty pier	7,500
For payment of contractors, completion of construction work between Buffalo and Tonawanda	25,000

ENLARGEMENT OF THE ERIE CANAL LOCKS.

The undersigned, in his previous reports, has endeavored to impress upon the Hon. the Legislature the propriety and urgent necessity for the enlargement of the locks upon the Erie canal, and most especially upon the Western Division, where they are all single, except the combined locks at Lockport.

While nearly every Legislature for several years has conceded the propriety and expediency of this proposed improvement, there has been exhibited a strong disposition to postpone the measure. The principal reasons given were that it was impolitic to impose any additional burdens upon the people while the late war for the suppression of the rebellion was in existence, and that the period for calling a constitutional convention was so near at hand, through whose agency the moneys in the canal debt sinking funds not required to pay principal and interest, might be very justly applied to the enlargement without rendering taxation necessary. During the progress of the war the engrossing and all-absorbing consideration of the measures to preserve the national existence and protect the people from imminent danger, precluded the usual and careful examination of questions of domestic polity. That strong and controlling element has disappeared, and State interests now demand and are worthy the profound investigation and prompt action of the ablest statesmen of the commonwealth.

Too much confidence must not be placed in the action of a constitutional convention, if convened, whose labors may be disapproved by the people. The probabilities of such an event seem more likely than otherwise.

If the people have received from the imperial pathway more than its cost, and have a surplus for its improvement, why should there be any evasion or hesitancy in restoring it, to be repaid back in a very few years, and with such increased additions that there may be no more taxation upon the people for the support of the system of useful but non-paying canals, and for State government.

Taxation in this case is not oppression, but is the just, proper and feasible manner to provide the means.

It is not my intention to present an elaborate argument to prove the necessity of the work or its value when accomplished, as the subject has been fully discussed in the reports of the canal officers, and in my judgment the public mind is well prepared and will sanction the measure, yet is very proper to produce here the following statement (an extract from a report of the Canal Board to the Legislature on the 26th of March, 1866), which fully explains, in a condensed manner, the value of the Erie canal and the judgment of your officers.

"All the canals of this State have cost, including construction, land damages, superintendence, repairs, interest on loans, and everything else, in round numbers, about $100,000,000, and have paid back between $83,000,000 and $84,000,000, leaving a debt upon them to-day of about $16,000,000; no direct taxation upon the people on account of the canals remains to-day unpaid, but, on the contrary, the treasury of the State has been reimbursed, principal and interest, in full; and has now in its coffers nearly $1,000,000 from the canal revenues in advance of any taxation for canal purposes.

The Erie canal account shows the gratifying result of a credit of over $9,000,000 above all cost to the State, and if improved, as it should be, will not only pay again for its enlargement, but finish the payment of the lateral canals debt, and perform its constitutional obligations to the general funds. Whatever of value to the people the canals may be, above the comparatively small debt against them, it has been made by the canal system and the legitimate revenues of the canals, and not by direct taxation.

In the light of this financial result, looking only to the necessity of retaining and improving this future great fund for our State, and throwing aside all considerations of the immense incidental advantages to the growth and prosperity of our State in the past, New York should keep pace with the increasing wants and growing demands of the rapidly enlarging West."

The effect of the former enlargement of the Erie canal has proved more valuable to the commercial and industrial interests of the State, than anticipated by its most sanguine friends, and while the estimates of the engineers in regard to cost proved erroneous, their calculations in regard to cost of transportation and movement of large boats, have proved remarkably correct. I refer to the statement made by John B. Jervis, prior to the commencement of the enlargement, which estimated that the reduction of cost of transportation would be fifty per cent. The result shows that the actual cheapening of transportation was fifty and a half per cent. (See State Engineer's report of 1864, pages 123 and 124.)

Hon. Wm. B. Taylor's report of 1864, upon the subject of enlarged locks, most elaborately and scientifically discusses the project, and condenses his judgment in the following extract, page 134:

"The conclusions arrived at are, that by enlarging one tier of the present locks, and constructing a new enlarged lock by the side of present single ones on the Erie canal, at an expense of $10,380,169.75 (which includes land damages, altering structures, removing bench walls and deepening the canal one foot), the same results are obtained in cheapening the cost of transportation, as by the original enlargement, at an expense (deducting interest on loans) of $32,008,850.40."

The present proposed improvement advises the building of an entire new lock by the side of the old single locks, and by enlarging one of the old locks where they are double—to make them two hundred and twenty-five feet long, and twenty five feet wide. It is also proposed to remove what are called bench walls, to pay land damages, provide for additional supply of water to deepen the canal one foot, and for incidental expenses connected therewith.

The entire expense, as stated by the State Engineer, is less than ten and one-half million of dollars; of this amount, one million seven hundred thousand dollars are for removing bench walls—they are slope walls, built upon a defective plan, are rapidly failing—and should in any event be removed, as they obstruct navigation and create much embarrassment. The items for feeders and reservoirs amount to three hundred and ninety-three thousand dollars. These feeders and reservoirs should be at once established. They are absolutely necessary now to maintain in dry seasons perfect navigation.

Thus it may be seen that over two millions of dollars of the gross sum estimated for the enlargement, are now required, and should be provided even though no larger locks are built, permitting the passage of larger boats. The estimated expense of deepening the canal one foot is nearly a million of dollars. This portion of the improvement I do not consider absolutely necessary.

The estimates for the work were made in the summer of 1863, when the value of materials and labor had largely increased as compared with 1861. Reference is made to Engineer Story's report, incorporated in State Engineer's report, previously referred to—see page 195—in which it is stated that the estimates made for the enlargement on the Western Division were fifty per cent greater than prices paid for work in 1861. Engineer Jenne, of the Eastern Division, makes a similar statement—see page 169. Such additions were no doubt proper to be made, as the uncertain condition of national affairs compelled contractors to require advanced prices to protect them against all contingencies.

I have no hesitation in expressing the opinion that twenty per cent deduction from the estimates then made, is fully warranted, and less than might be proposed, with regard to reputation for prudence and caution.

The deduction of estimated cost of removing bench walls, providing feeders, deepening canal one foot, and of 20 per cent from estimates of 1863, would leave the anticipated cost of the lock enlargement but five millions eight hundred and thirty-four thousand two hundred and forty dollars.

This statement is intended to show the expense which is chargeable to the proposed construction of the new locks, as all the other work is really necessary for ordinary canal purposes.

If the Legislature should not deem proper to authorise the construction of the locks with the other improvement upon the whole line of the Erie, I most earnestly urge upon them to inaugurate action which will promptly relieve this embarrassment of navigation at the single locks.

They create crowds of boats waiting for lockage, which again prevent passage of water to keep levels up below, and thus by detention of boats and cargoes render canal navigation vexatious, uncertain, unpopular, and expensive.

The cost of the work, including all items, on the Western Division, I estimate at about two and one-half millions, and the improvement can be completed and used on the opening of navigation in the year 1869.

Respectfully submitted,
F. A. ALBERGER,
Canal Commissioner.

APPENDIX.

Division Engineer's Office,
Rochester, *Oct.* 1, 1866.

Hon. F. A. Alberger,
Canal Commissioner:

Sir—In compliance with your direction, I herewith submit a report showing the progress and present condition of the work on the Western Division of the New York State canals, for the fiscal year ending September 30, 1866.

ERIE CANAL.

During the past year no serious interruption to navigation has occurred on this canal, except that caused by the break at Mabee's waste weir, which occurred on the night of October 14th, 1865. A portion of the waste weir and one hundred feet in length of the berme bank was carried out to a depth of six feet below canal bottom. Necessary repairs were made sufficient to obtain navigation in the shortest time. Permanent repairs were made and the waste weir and discharge channel reconstructed during the following winter and spring, at an expense of $12,279.36, of which amount $7,279-36 was paid by the State.

Work under Contract during year.

On the contracts for bottoming sections No. 291, 292, 294, 295, 296, 321 and 322, nothing has been done during the year. I would reiterate the recommendation of last year's report, that means be provided for the completion during the coming winter of the work contemplated in these contracts. The estimated cost to complete is $25,200.

The work embraced in the contracts for sections Nos. 361, 362, 364, 365 and 366, between Tonawanda and Black Rock has been completed.

The work of improving Oak Orchard creek feeder is still in progress, and will soon be completed. A contract was entered into for dredging a channel below the Ship lock at Black Rock, which has also been completed.

The work of dredging a portion of Erie basin, at Buffalo, is not yet finished.

For detailed information in regard to the above mentioned work, attention is called to annexed table No. 1.

MISCELLANEOUS REPAIRS DONE DURING YEAR.

Among the important repairs and improvements of a miscellaneous character, done under the supervision of this department during the year, are the following:

Repairing break at Mabee's waste weir, previously mentioned; stopping leaks and securing culvert at Shelby basin, at an expense of $2,794.50.

There has been expended the further sum of $3,329.78, in filling on the face of the towing path high bank, near Four Mile grocery. Previous to the adoption of this plan, the embankment was constantly sliding off on the outside, as the result of heavy rains and the leaking of water though the bank. Large sums have been expended in the way of outside protection, but not with entire success. The present plan of filling on the inside face of the bank and cutting off on berme to preserve water way, has proved effectual, and the further sum of $2,500 will finish the improvement, and render the bank entirely secure.

The weigh lock discharge and State house lot have also been improved and made convenient and safe, at an expense of $3,429.55.

Stone protection has been placed at different points on repair section No. 12. The repairs of breaks of March 17th, 1865, on repair section No. 11, have been completed at an expense of $15,968.72.

The leaks through the pier surrounding Black Rock harbor have been stopped by facing with gravel.

On repair section No. 14, the following named items of work have been done in repairing the breaks of March 17, 1865, viz:

Filling in rear of pile docking, and also rebuilding the abutments of elevator bridge at Tonawanda.

There has also been constructed a spillway for State ditch over culvert at Tonawanda.

For a detailed statement of this class of work done, see annexed table No. 2.

WORK REQUIRED TO BE DONE DURING NEXT FISCAL YEAR.

This division of the Erie canal has been kept in very efficient condition during the past season, and can be so maintained at a moderate outlay in the way of extraordinary repairs on the part of the State.

The old tow path docking on section No. 369, between Black Rock and Black Rock ferry, is decayed and in very bad condition. This docking was built before the enlargement, and it does not start at bottom of canal. As a consequence it is being constantly undermined and the bottom pushed out, and large holes washed out of the towing path, requiring a large annual outlay to keep it in passable and safe condition. Piles have also been driven along the bottom of this old dock to retain it in place, which piles have also been pushed over and out of shape in such a way as to obstruct the passage of the tow lines over them.

The improvement recommended consists in straightening the line by sinking cribs outside the present docking to canal bottom, and constructing thereon a vertical wall, commencing at low water mark, and extending to top bank. The cost is estimated at $64,800.

A protection wall is required in the rear of a portion of the towing path bank on Section No. 366, where the bank has to sustain the wash of Niagara river.

At all times the current of the river is very rapid and in high winds carries off immense quantities of earth from the bank, and with greater facility from the fact that it is constructed of a clay which, when saturated with water, runs off very readily into the river. The estimated cost of this improvement is $8,700.

The towing path near Rochester weigh lock was originally finished with a plank facing on the inside. Much trouble has been experienced in keeping this facing in place in consequence of the collection of water let down against it from the drains from dwellings adiacent, and the action of the frost upon it thus circumstanced. This facing is decayed and nearly worn out, and should be replaced by a durable vertical wall, at an estimated cost, on change of plan, of $10,400.

Much inconvenience and delay have been experienced in operating the Rochester weigh lock, in consequence of the contracted and tortuous channel of the canal east of and adjacent to it. It should be improved by straightening the berme line between the weigh lock and Griffith Street bridge, which was erected to be partly used as a change bridge, and the improvement spoken of will increase its efficiency for that purpose. A vertical wall should also be constructed along this bank for a short distance, at an estimated cost, for the whole improvement, of $7,300.

The vertical wall west of the Rochester weigh-lock, between the canal and mill-race, should be raised to protect and secure the towing-path bank, at an estimated cost of $1,800.

The bridges on this division will mostly have to be rebuilt within the next three years, and probably nearly one-quarter of the whole next season. This class of bridges have to be renewed once in eight or ten years. I would recommend that when rebuilt iron should be substituted in towns and villages, and on great thoroughfares, and in all other cases where it is not thought advisable at present to reconstruct entirely of iron, that iron chords and shoes be substituted for the present plan. Believing this to be the true policy, I have estimated as necessary for such change of plan on this division, the coming year, the sum of $20,000.

In the following statement I have designated the more important items of work, with the estimated cost of each, which in my opinion require to be done the coming year.

Protection wall on rear of towing-path bank, on section No. 366, to bank, from the wash of Niagara river	$8,700
Vertical wall in place of timber facing on towing-path east of and opposite weigh-lock at Rochester	10,358
Straightening line on berme from Rochester weigh-lock to Griffith street bridge	7,300
Complete a vertical wall west of Rochester weigh-lock, outside of towing-path, along mill-race	1,800
Complete the filling in and securing the towing-path, high bank, near 4 mile grocery	2,500
Raising, enlarging and securing banks	44,000
Changing plans of bridges	20,000
Reconstructing docking on the Clark and Skinner canal, Buffalo	4,000
Straightening tow-path and construction of a vertical wall on section 369, between Black Rock and Black Ferry	64,800

GENESEE VALLEY CANAL.

There have been several small breaks on this canal during the past season, causing at each a short detention to navigation. The principal one of these was the leak at Haskell Creek waste weir, on the extension, which took several days to repair. The leak was caused by the settling of the inside wings of the abutments, which were not secured on a proper foundation when built. Repairs were made by taking up the wings and surrounding the ends with a bank of earth. This structure will require to be overhauled, and the wings rebuilt on a pile foundation during the coming winter. The estimated cost of the work required is $1,600. In the present condition of this canal, with its old and worn out structures built on cheap, and in some cases defective plans, originally, the most careful attention will fail to guard against often recurring casualties of this character.

PRESENT CONDITION OF WORK UNDER CONTRACT DURING THE YEAR.

The contracts for constructing locks of stone in place of wood locks, have been completed.

Locks Nos. 11, 15, 31, 38 and 53, have been thus rebuilt on change of plan and brought into use.

In the reconstruction of these locks it was found that the lower courses of timber in the old lock chambers, for from eight to ten feet from the bottom, were sound and in good condition, and only the top six or eight feet decayed. In view of this fact, I would recommend the remaining eight wood locks on section No. 2, should be repaired by taking out the decayed timber and replacing with new, the earth taken from the rear of the side walls, and they pressed back and tied in their places, the lower wings rebuilt of timber, and new gates and valves be inserted during the coming winter. I recommend this plan as being much cheaper than that of rebuilding of stone, and believe that thus repaired these locks will prove efficient and sound for many years. This plan also diverts the services of a less number of laborers in the spring from the ordinary repairs of the canal, a consideration of importance in that locality, where labor, at the best, is scarce, and where so much of it is required every spring to put the canal in nagigable order.

There remain eight locks of this character, designated as locks Nos. 14, 17, 18, 19, 30, 37, 39 and 40, all of which should be repaired at an early date, and more than half of them can hardly be expected to last another season without the repairs mentioned above.

The estimated cost per lock on this plan is $7,000.

The culvert under the canal on section No. 66, has been completed and brought into use at an expense of $1,500.

For details of this class of work, reference is made to Table No. 2, hereto annexed.

MISCELLANEOUS REPAIRS.

Among the miscellaneous repairs done under direction of the Canal Commissioner, are the following:

Protecting canal banks on repair section No 3, at a cost of $2,063.94.

Reconstructing portions of wing and securing lower end of Piffardinia waste weir, on repair section No. 1, at a cost of $1,189.22.

There has been paid the farther sum of $34,630 for repairing the breaks of March 17, 1865, on repair section No. 1. (See annexed Table No. 2.)

GENERAL REMARKS.

The Genesee Valley canal is very much out of repair, and is every year becoming worse, in consequence of the failure of its many structures, built in the cheapest manner originally, to answer a temporary purpose, and also from a gradual filling up of the prism, from the wash and sliding in of its banks, which were never walled, and also from the deposits from the many small streams which flow into it, and, in time of floods, bring down immense quantities of earth and gravel from the steep hill sides along the line. As a result of this state of affairs, navigation is becoming so precarious that it is with much difficulty that boatmen are induced to engage in the through carrying trade on it, or forwarders to invest their money in products to seek a market by that route.

It is true, large sums have been expended on this canal for some years past, but for the most part for the purpose of replacing and securing banks and structures destroyed by the disastrous floods which have prevailed along its line at short intervals. And while the expenditures thus made were necessary, and will probably prevent the recurrence of like failures at the same points, yet these improvements are merely local in their effect, and do not remove impediments to navigation to the same extent that th expenditure of the same money would have done had there been no disasters, and it could have been judiciously distributed over the whole length of canal.

The only remedy for this state of things, I conceive to be, that the Legislature should at each session, for two or three years, promptly appropriate such sums as the proper officers may recommend, for the purpose of removing decayed and worn out structures in a more permanent manner and on improved plans—to cause to be constructed such other new structures as experience shall suggest as necessary to its increased efficiency and usefulness, and also to cause such excavations and embankments to be made as will furnish the waterway contemplated by law, and to retain, without unnecessary waste, the water thus furnished. At the same time, the repair contractors should be held to a rigid performance of the duties required of them in their contracts, not only in the matter of keeping their sections well bottomed, and structures in safe working condition, but also in the employment of a sufficient number of reliable locktenders and other persons, to keep the levels at all times in navigable condition, and also to prevent the careless and useless waste of water, or its abstraction and use by unauthorized parties, which has sometimes resulted from their neglect.

By such a systematic course of repairs, the Genesee Valley canal will increase in usefulness every year, and not a long time elapse before good and continued navigation can be kept up at a reasonable yearly expense.

Unless some measures of a radical character like those mentioned above are speedily inaugurated, this canal will cease to be of value for purposes of navigation.

Work Required to be done During next Fiscal Year.

The north timber trunk at Portage is in a very dilapidated and useless condition. Work amounting to about $7,000 was done in the spring of 1864, with a view of replacing this trunk with a prism, and banks of earth, supported on the rear with stone. Since that time no money has been provided to complete the work, and every season large quantities of the earth already placed for bank is washed away, by leakage from the old trunk and the surface water. I fear that the old trunk will not stand another season, and I trust provision will be made for the speedy completion of the earth work contemplated in the work already commenced to replace the timber trunk. The estimated cost is $19,000.

Much detention has occurred in years past, from lack of water to supply the Cuba Summit. To remedy this, act chap. 170, Laws of 1864, was passed, which provides for taking Lime lake as a reservoir. No funds have as yet, however, been provided for the construction of the work, and it has not been commenced.

The following description of this lake is taken from the report of O. W. Story, as embraced in Appendix to Canal Commissioners' Report for 1865, on page 159.

"Lime lake is about one mile long, north and south, and has an average width of about sixty rods. It is located in the north part of the town of Machias, in the county of Cattaraugus, and is a part of the head of Cattaraugus creek, consequently its waters flow into Lake Erie. It is contemplated to make the reservoir about one and a half miles long, with an average width of ninety rods, by building a bank at the north end twenty-two chains long, and one across the swamp, at the south end, seventeen chains long, of sufficient height to raise the water fifteen feet above the present surface of the lake. It is also contemplated to draw the lake eight feet below the present surface.

"The reservoir is to be filled from the Ischua creek during the spring flood; also to hold a portion of its surplus waters in summer freshets."

For use in dry weather, the water is to be passed down Ischua creek to the present canal feeder, a distance of about fifteen miles. The cost of the work is estimated at $160,000.

With this reservoir constructed, and the aqueducts, waste weirs and lock valves made tight, and the water in every other way properly husbanded, I believe the canal could be supplied with sufficient water, the dryest season through, for the purposes of navigation.

The Ischua feeder aqueduct, about one mile north of Hinsdale, is worn out. The timber is very much decayed and the piers and one abutment in a precarious condition. A part, at least, of this structure should be rebuilt during the ensuing winter and spring. The original plan on which it was built was very defective. The present structure is 360 feet in length, passing the feeder waters over Oil creek and the deep valley through which it flows. This feeder is one of the main sources from which that portion of the canal is supplied with water, and will become still more important after the construction of Lime Lake reservoir, which will also discharge its waters through this feeder. In no case should the aqueduct be reconstructed on the original plan, and in view of its present and prospective importance, it should be reconstructed in a stable and permanent manner.

Ischua feeder should be widened and the banks raised to enable it to pass more water, as during the dry season when Oil Creek reservoir is exhausted, it is almost the only source of supply for the Summit canal. The estimated cost is $3,000.

There are many lesser items of work which equally require to be done the ensuing year, which I have designated in detail in the following statement.

WORK RECOMMENDED TO BE DONE DURING COMING YEAR.

Constructing a prism and bank of earth in place of the north timber trunk at Portage	$19,000
Protecting the canal at Griffin's creek, Cuba	3,600
Guard bank for the bulk head of Caneseraga Creek feeder along the creek, to protect canal and feeder from floods	1,300
Repairing timber locks Nos. 14, 17, 18, 19, 30, 37, 39 and 40, by removing part of chamber and lower wings	56,000
Guard bank from Rapids lock to the railroad embankment near Rochester, to protect canal from floods	8,000
Securing the towing-path slide bank near Brushville with slope wall and gravel lining	675
Constructing two sluices under towing-path near lock No. 31, to convey small streams into canal	450
Securing and strengthening Haskell Creek waste weir, by relaying a portion of the abutments of same on a pile foundation	1,600
Protecting canal bank where Champlain creek empties into it	350
Protecting canal bank where Black creek empties into it,	200
Making a reservoir of Lime lake	160,000
Making a waste weir safe on Portage level	1,000
Raising towing-path bank at Smith's mills, south of Hinsdale, to prevent flood waters of Olean creek from flowing into it	1,400
Enlarging and raising towing-path west of Cuba waste weir	2,000
Rebuilding bridge at Hunter street, Rochester, (change of plan)	5,000
Reconstructing Ischua feeder aqueduct, near Hinsdale	
Protecting canal bank opposite and below lock No. 69, with stone and brush	6,000
Constructing bulkhead and gates to use Smith's mill-pond, near Hinsdale, for a feeder	1,200
To change channel of creek on Breed and Gay's land, north of Cuba	500
Widening channel and raising banks of Ischua feeder	3,000
Widening channel of canal in cuts at Dumplin hill and other places	3,000

Work authorized by act of Legislature, but not yet commenced.

Erie Canal.

	Amount of appropriation.	Estimated cost.
Sewer in the city of Lockport	$5,000	$10,000
Raising canal banks through city of Rochester	25,000	26,600
Alterations in Genesee river dam, near Rochester	5,000	2,400
	$35,000	$39,000

Genesee Valley Canal.

Reconstruction State road bridge at Nunda, (change of plan)	------	$4,128
Improvement at Moscow Landing	$3,000	5,000
Construction Lime lake reservoir	------	160,000
Building iron bridge at Tremont street, Rochester	7,500	7,000
	$10,500	$176,128

Respectfully submitted,

W. W. JEROME,

Acting Division Engineer.

TABLE No. 1.

Statement showing the character of work, estimated cost at contract prices, the amount done during the fiscal year ending September 30, 1866, *and the amount remaining to be done on work under contract on the Western Division of the New York State canals.*

Character of work.	Estimated cost at contract prices.	Am't done during fiscal year.	Total am't done.	Am't remaining to be done.
ERIE CANAL.				
Sect's Nos. 291, 292 and 294	$29,150 00	....	$18,060 00	$11,090 00
do 295 and 296	16,200 00	....	9,000 00	7,290 00
do 321 and 322	9,460 00	....	2,560 00	6,900 00
do 361	46,014 30	$680 67	46,014 30	Completed.
do 362	26,287 36	14,190 93	26,287 36	do
do 364 and 365	45,044 16	31,473 88	45,044 16	do
do 366	50,101 23	16,711 80	50,101 23	do
Improvement of Oak Orchard creek	45,460 00	17,101 68	40,583 98	4,876 02
Dredging channel below ship lock, at Black Rock	2,109 00	2,109 00	2,109 00	Completed.
Dredging a portion of Erie basin	6,000 00	5,820 00	5,820 00	180 00
Erie street bridge, Buffalo	16,300 00	10,860 00	10,860 00	5,440 00
	$292,126 05	$98,947 96	$256,440 03	$35,686 02
GENESEE VALLEY CANAL.				
Lock No. 11	$15,884 62	$10,900 00	$15,884 62	Completed.
do 15	16,720 47	13,520 40	16,720 47	do
do 31	15,073 87	12,100 00	15,073 87	do
do 38	16,041 20	14,040 00	16,041 20	do
do 53	15,582 87	10,362 87	15,582 87	do
Tremont street bridge	7,000 00	....	....	7,000 00
Culvert on section No. 66	1,500 00	1,500 00	1,500 00	Cancelled.
	$87,803 03	$62,423 34	$80,803 03	$7,000 00

TABLE No. 2.

Statement showing amount of work done under supervision of Engineer Department, on miscellaneous repairs authorized by Canal Board and by the Canal Commissioner, and amount paid thereon during fiscal year ending September 30, 1866.

Character of work.	Amount appriated.	Amount done.	Amount paid.
ERIE CANAL.			
Strengthening roadways of Commercial street bridge, Buffalo	$450 00	$450 00	$450 00
Rebuilding bridge over slip No. 2 (difference in cost)	200 00	200 00	200 00
Composite valves and wheels, and chain levers in Lockville locks	....	515 34	515 34
Rebuilding receiver and discharge at discharge culvert, Lockport	....	311 70	311 70
Stopping leaks at Shelby basin culvert	....	2,794 50	2,794 50
Securing and strengthening high embankment at 4 mile grocery	....	3,329 78	3,329 78
Repairing break at Mabee's waste wier	....	12,279 36	12,279 36
Securing docking on slip No. 2, Buffalo	....	647 32	647 32
Improving weigh-lock, discharge and yard	....	3,429 55	3,429 55
Graveling towing-path, section No. 12	....	365 00	365 00
Protecting banks with stone, section No. 12	....	972 13	972 13
Reconstructing Amherst street bridge over State ditch, Black Rock	....	830 27	830 27
Reconstructing military road bridge over State ditch, Black Rock	....	746 12	746 12
Repairing the breaks of March 17, 1865, repair section No. 14	....	380 90	380 90
Repairing the breaks of March 17, 1865, repair section No. 11; work done in 1865, $13,540	....	15,968 92	15,968 92
	$650 00	$43,220 89	$43,220 89
GENESEE VALLEY CANAL.			
Protecting canal banks, repair section No. 3	....	$2,063 94	$2,063 94
Reconstructing portions of the wing and securing lower end of Piffardinia waste weir, section No. 1	....	1,189 22	1,189 2
Repairing the break of March 17, 1865, repair section No. 1	....	34,630,00	34,630 00
	....	$37,883 16	$37,883 16

TABLES

ACCOMPANYING THE ANNUAL REPORT OF THE CANAL COMMISSIONERS.

The following is a Schedule of all Repair Contracts let in pursuance of act, chap. 105, *Laws of* 1857, *to the present time, and shows the commencement of the several terms, the canal or section embraced in the contracts, the duration of each term, the annual compensation to the contractor, and the several amounts of cash deposited as security for the performance of the contracts, and the name of the contractor or contractors.*

Commencement of term.	Canal and section.	Duration of term.	Annual compensation.	Cash security.	Name of contractor.	Residence.	Remarks.
March 4, 1860..	Erie, No. 1	3 years	$28,440	$4,000	Charles T. Baldwin...	Oswego*......	Expired March 4, 1863.
March 4, 1863..	do 1	3 years 303 ds.	39,900	4,000	Spencer Jackson......	Medina	Expired January 1, 1867.
May 1, 1859..	do 2	3 years	7,900	....	Smith A. Waterman..	West Troy ...	Abandoned October 8, 1859.
March 4, 1860..	do 2	3 years	9,700	2,000	William McClary.....	Amsterdam ..	Expired March 4, 1863.
March 4, 1863..	do 2	3 yrs. 303 ds.	14,500	4,000	Lewis Selye....... ..	Rochester....	Abandoned August 1, 1864.
October 1, 1864..	do 2	3¼ years	18,000	4,000	John H. Wooden.....	Oswego	Abandoned March 24, 1865.
October 1, 1865..	do 2	3¼ years	17,750	4,000	Chas. A. Donaldson ..	Fultonville...	Expires January 1, 1869.
May 1, 1859..	do 3	3 years	7,440	....	John McDonald	Amsterdam ..	Expired May 1, 1862.
May 1, 1862..	do 3	4⅔ years	10,900	4,000	Jared P. Dodge	Mount Morris	Abandoned July 21, 1863.
October 1, 1864..	do 3	3¼ years	16,780	4,000	Vanslyck & Neff	Amsterdam ..	Expires January 1, 1868.
May 1, 1859..	do 4	3 years	8,849	....	John F. Hosch.......	Mohawk	Expired May 1, 1862.
May 1, 1862..	do 4	4⅔ years	12,780	4,000	Hosch & Lowell.......	Mohawk	Abandoned August 1, 1864.
October 1, 1864..	do 4	3¼ years	22,900	4,000	Samuel F. Case	Fulton.......	Expires January 1, 1868.
May 1, 1859..	do 5	3 years	2,995	....	Gideon Searl.........	Fultonville...	Abandoned August 20, 1859.
March 4, 1860..	do 5	3 years	5,890	2,000	Eli T. Bangs.........	Fayetteville..	Expired March 4, 1863.
March 4, 1863..	do 5	3 yrs. 303 ds.	4,483	4,000	Phillip Corkings	Chittenango..	Abandoned August 1, 1864.
October 1, 1864..	do 5	3¼ years	12,000	4,000	Edwin H. French.....	Fulton.......	Expires January 1, 1868.
February 1, 1859..	do 7	3 years	2,473	....	Thomas J. Vanderlip.	Penn Yan....	Abandoned February 28, 1861.
May 1, 1861..	do 7	5 years	3,490	4,000	Thomas Gale.........	Salina	Expired May 1, 1866.
May 1, 1866..	do 7	4⅔ years	5,000	4,000	William Austin.......	Fayetteville .	Expires January 1, 1871.
October 1, 1859..	do 8	3 years	7,000	2,000	Lewis Selye..........	Rochester....	Expired October 1, 1862.
Novemb'r 1, 1862..	do 8	4 1-6 years...	4,940	4,000	Charles Nichols.......	De Witt	Abandoned September 22, 1864.
March 1, 1865..	do 8	3 10-12 years.	6,500	4,000	Myron Bangs.........	Fayetteville .	Expires January 1, 1869.
February 1, 1859..	do 9	3 years	4,995	....	Robert M. Root	Pompey......	Abandoned March 5, 1861.
May 1, 1861..	do 9	5 years	7,000	4,000	Chas. J. Hayden.....	Rochester ..	Expired May 1, 1866.
May 1, 1866..	do 9	4⅔ years	6,900	4,000	Amos W. Chase	Fayetteville..	Expires January 1, 1871.
May 1, 1859..	do 10	3 years	6,190	....	Purdy M. Willetts....	Macedon	Abandoned May 1, 1859.
October 1, 1859..	do 10	3 years	7,800	....	John Dunn...........	Genesee Falls	Abandoned October 8, 1859.
March 4, 1860..	do 10	3 years	9,439	2,000	John C. Hunt	Syracuse.....	Expired March 4, 1863.
March 4, 1863..	do 10	3 yrs. 303 ds.	11,960	4,000	Chester B. Thomas ...	Rochester....	Expires January 1, 1867.

May 1, 1859	do 11	3 years	5,800		Hiram P. Haskins	Havana	Abandoned May 1, 1859.
October 1, 1859	do 11	3 years	8,280		Myron H. Mills	Rochester	Expired October 1, 1862.
Novemb'r 1, 1862	do 11	4 1-6 years	11,900	4,000	Byron M. Hanks	Rochester	Expires January 1, 1867.
May 1, 1859	do 12	3 years	3,453		Lewis M. Loss	Lyons	Abandoned February 4, 1862.
April 1, 1862	do 12	4¾ years	6,700	4,000	Edward A. Mills	Rochester	Expires January 1, 1867.
May 1, 1859	do 13	3 years	5,495		Thomas B. Morrow	Albany	Abandoned December 19, 1860.
March 15, 1861	do 13	5 years	9,800	4,000	Francis Hitchins	Lockport	Abandoned August 1, 1864.
October 1, 1864	do 13	3¼ years	14,400	4,000	N. L. Osborn	Eagle Harbor	Expires January 1, 1868.
May 1, 1859	do 14	3 years	9,900		Shoemaker & Fillmore		Did not enter into contract.
March 1, 1860	do 14	3 years	14,500		Wm. H. Douglass	Buffalo	Expired March 1, 1863.
March 1, 1863	do 14	3 10-12 years	14,400	4,000	Archibald McArthur	Mount Morris	Abandoned August 1, 1864.
October 1, 1864	do 14	3¼ years	24,970	4,000	Andrew Spalding	Fultonville	Expires January 1, 1868.
May 10, 1858	Champlain, No. 1	5 years	9,170		Sidney Seeley	Saratoga.	Did not enter into contract.
May 1, 1859	do 1	3 years	8,973		Sampson Chaffee Ames	Schuylerville.	Abandoned April 2, 1860.
August 1, 1860	do 1	5 years	8,659	2,000	Chas. J. DeGraw	Fulton	Abandoned June 1, 1862.
October 1, 1862	do 1	4¼ years	13,848	4,000	Archibald McArthur	Mount Morris	Abandoned August 1, 1864.
October 1, 1864	do 1	3¼ years	25,800	4,000	Samuel G. Hart	Fulton	Expires January 1, 1868.
May 1, 1859	do 2	3 years	6,800		Ephraim Owens	Albany	Abandoned April 2, 1860.
August 1, 1860	do 2	5 years	9,300	2,000	Anson Bangs	Fayetteville	Abandoned August 1, 1864.
October 1, 1864	do 2	3¼ years	19,400	4,000	Harvey Church	Sandy Hill	Expires January 1, 1868.
May 1, 1859	do 3	3 years	5,350		Henry Holman	Albany	Abandoned April 2, 1860.
August 1, 1860	do 3	5 years	4,300	2,000	Solon Vanderburgh	Schuylerville.	Abandoned May 26, 1863.
August 1, 1863	do 3	3 5-12 years	7,500	4,000	Henry D. Denison	Syracuse	Expires January 1, 1867.
March 1, 1861	Black river, No. 1	5 years	2,999	2,000	Francis M. McFarlin	Rochester	Did not enter into contract.
May 1, 1861	do 1	4⅔ years	8,700	4,000	Edward H. Edwards	Chen'go Forks	Expired January 1, 1866.
April 1, 1866	do 1	3¼ years	16,440	4,000	William McArthur	Rochester	Expires January 1, 1870.
March 1, 1861	do 2	5 years	4,178	2,000	Benj. F. Maxson	Little Falls	Expired January 1, 1866.
April 1, 1866	do 2	3¾ years	7,980	4,000	Archibald McArthur	Mount Morris	Expires January 1, 1870.
Novemb'r 1, 1859	do 3	5 years	3,800	2,000	Ward & McVickar	Little Falls	Expired November 1, 1864.
March 1, 1865	do 3	3 10-12 years.	9,750	4,000	Ward & McVickar	Little Falls	Expires January 1, 1866.
October 1, 1860	Chenango, No. 1	5 years	11,500	2,000	Edwin W. Parker	Cuba	Abandoned March 5, 1861.
May 1, 1861	do 1	5 years	13,990	4,000	A. Peck & Co	Hamilton	Expired May 1, 1866.
May 1, 1866	do 1	4⅔ years	17,000	4,000	James J. Belden	Syracuse	Expires January 1, 1871.
October 1, 1860	do 2	5 years	5,600	2,000	John P. Smith	Norwich	Abandoned August 1, 1864.
October 1, 1864	do 2	3¼ years	16,400	4,000	Daniel McGerry	Rochester	Expires January 1, 1868.
February 1, 1859	do 3	3 years	4,900		Holmes & Huntley	Manlius	Abandoned March 5, 1861.
May 1, 1861	do 3	5 years	7,000	4,000	Josiah Britnall	Syracuse	Expired May 1, 1666.
June 1, 1866	do 3	4 7-12 years	18,000	4,000	John R. Whitlock	Syracuse	Expires January 1, 1871.
October 1, 1860	Oneida Lake, No. 1	5 years	2,375	2,000	Wm. R. Chapman	Fultonville	Expired October 1, 1865.
May 1, 1859	Oswego, No. 1	3 years	2,800		Henry D. Denison	Syracuse	Expired May 1, 1862.
May 1, 1862	do 1	4⅔ years	9,000	4,000	William Avery	De Witt	Expires January 1, 1867.

SCHEDULE—Continued.

Commencement of term.	Canal and section.	Duration of term.	Annual compensation.	Cash security.	Name of contractors	Residence.	Remarks.
February 1, 1859	Oswego, No. 2	3 years	$12,899	....	Stimson Ostrander	Oswego	Expired February 1, 1862.
May 1, 1862	do 2	4⅔ years	11,900	$4,000	Chas. E. Case	Fulton	Abandoned March 30, 1865.
October 1, 1865	do 2	3¼ years	21,000	4,000	A. Cadwell Belden	Geddes	Expires January 1, 1869.
April 1, 1859	Cay. and Sen., No. 1.	3 years	3,574	....	Moses E. Luddington.	Fulton	Abandoned March 15, 1861.
June 1, 1861	do do 1.	4 years	4,490	4,000	John Ecker	Fayetteville	Abandoned April 15, 1862.
July 1, 1862	do do 1.	4½ years	9,950	4,000	George M. Case	Fulton	Expires January 1, 1867.
October 1, 1860	Crooked Lake, No. 1.	5 years	3,869	2,000	Homer W. Randall	Penn Yan	Expired October 1, 1865.
October 1, 1865	do do 1.	3¼ years	6,990	4,000	R. Nelson Gere	Geddes	Expires January 1, 1869.
February 1, 1859	Chem'g & feeder No. 1	3 years	13,475	....	Thomas W. Amsbury	Milo	Expired February 1, 1862.
April 1, 1862	Chem'g & feeder No. 1	4¾ years	15,960	4,000	James Bellows	Rochester	Expires January 1, 1867.
May 1, 1859	Genesee Valley, No. 1	3 years	4,800	....	Alfred C. Dodge	Mount Morris	Abandoned October 14, 1861.
February 1, 1862	do do 1	5 years	8,472	4,000	William McArthur	Rochester	Abandoned August 1, 1864.
October 1, 1864	do do 1	3¼ years	19,400	4,000	Wm. H. Reed	Pittsford	Expires January 1, 1868.
March 15, 1861	do do 2	5 years	12,540	3,000	John Lambert	Pittsford	Abandoned August 15, 1864.
October 1, 1865	do do 2	3¼ years	17,000	4,000	Samuel Price	Portageville	Expires January 1, 1869.
May 1, 1859	do do 3	3 years	4,389	....	William Rumble	Belfast	Abandoned March 8, 1860.
August 1, 1860	do do 3	5 years	7,433	2,000	William McArthur	Palmyra	Expired August 1, 1865.
October 1, 1865	do do 3	3¼ year	9,990	4,000	N. Stanton Gere	Geddes	Expires January 1, 1869.

The following is a Schedule of Repair Contracts, with the percentage allowed in pursuance of act, chapter 252, *Laws of* 1864.

Commenceme't of term.	Canal and section.	Duration of term.	Original annual compensation.	Percen'e allowed.	Annual compensation including percentage.	Abandoned.	Name of contractor.	Expires.
March 4, 1863	Erie, No. 1	3¾ years	$39,900 00	72	$68,628 00		Spencer Jackson	Jan. 1. 1867.
March 4, 1863	do 2	3 years, 303 ds	14,500 00	61		Aug. 1, 1864	Lewis Selye	
May 1, 1862	do 4	4⅔ years	12,780 00	65		Aug. 1, 1864	Hosch & Lowell	
March 4, 1863	do 5	4⅔ years	4,483 00	70		Aug. 1, 1864	Phillip Corking.	
May 1, 1861	do 7	5 years	3,490 00	62	5,653 80		Thomas Gale	May 1, 1866.
Nov. 1, 1862	do 8	4 1-6 years	4,940 00	60		Sept. 22, 1864	Chas. Nichols	
May 1, 1861	do 9	5 years	7,000 00	61	11,270 00		Chas. J. Hayden	May 1, 1866.
March 4, 1863	do 10	3 years, 303 ds	11,960 00	62	19,375 20		Chester B. Thomas	Jan. 1, 1867.
Nov. 1, 1862	do 11	4 1-6 years	11,900 00	60	19,040 00		Byron M. Hanks	Jan. 1, 1867.
April 1, 1862	do 12	4¾ years	6,700 00	51	10,117 00		Edward A. Mills	Jan. 1, 1867.
March 15, 1861	do 13	5 years	9,800 00	70		Aug. 1, 1864	Francis Hitchins	
March 1, 1863	do 14	3 10-12 years.	14,400 00	70		Aug. 1, 1864	Archibald McArthur.	
April 1, 1862	Chemung, No. 1	4¾ years	15,960 00	60	25,536 00		James Bellows	Jan. 1, 1867.
May 1, 1861	Chenango, No. 1	5 years	13,990 00	50	20,985 00		A Peck & Co.	May 1, 1866.
Oct. 1, 1860	do 2	5 years	5,600 00	50		Aug. 1, 1864	John P. Smith	
May 1, 1861	do 3	5 years	7,000 00	53	10,710 00		Josiah Britnell.	May 1, 1866.
May 1, 1862	Oswego, No. 1	4⅔ years	9,000 00	35	12,150 00		Wm. Avery	Jan. 1, 1867.
May 1, 1862	do 2	4⅔ years	11,900 00	50	17,850 00	March 30, 1865	Chas. E. Case	
July 1, 1862	Cay. & Seneca, No. 1.	4½ years	9,950 00	41	14,029 50		Geerge M. Case	Jan. 1. 1867.
Oct. 1, 1860	Crooked Lake, No. 1.	5 years	3,869 00	55	5,996 95		H. W. Randall.	Oct. 1, 1865.
Feb. 1, 1862	Genesee Valley, No. 1	5 years	8,472 00	60		Aug. 1, 1864	Wm. McArthur	
March 15, 1861	dc do 2	5 years	12,540 00	60		Aug. 15, 1864	John Lambert	
Aug. 1, 1860	do do 3	5 years	7,433 00	50	11,149 50		Wm. McArthur	Aug. 1, 1865.
Oct. 1, 1862	Champlain, No. 1	4¼ years	13,848 00	60		Aug. 1, 1864	Archibald McArthur.	
Aug. 1, 1860	do 2	5 years	9,300 00	60		Aug. 1, 1864	Anson Bangs	
Aug. 1, 1863	do 3	3 5-12 years	7,500 00	60	12,000 00		H. D. Denison	Jan. 1, 1867.
May 1, 1861	Black River, No. 1	4⅔ years	8,700 00	50	13,050 00		Edward H. Edwards	Jan. 1, 1866.
March 1, 1861	do 2	5 years	4,178 00	50	6,267 00		Benj. F. Maxon	March 1, 1866.
Nov. 1, 1859	do 3	5 years.	3,800 00	50	5,700 00		Ward & McVickar	Nov. 1. 1864.

STATEMENT *showing amounts expended by superintendents of repairs and paid repair contractors, and average cost per mile, on each and all canals, from* 1827 *to* 1866 *inclusive.*

YEARS.	ERIE AND CHAMPLAIN CANALS.		OSWEGO CANAL.		CAYUGA AND SEN. CANAL.		CHEMUNG CANAL.		CROOKED LAKE CANAL.	
	Cost of repairs.	Av'ge per mile.	Cost of rep's.	Av. per mile.	Cost of rep's.	Av. per mile.	Cost of rep's.	Av. per mile.	Cost of rep's.	Av. per mile.
1827	$232,472	$528	....	....	....	....	....	....	....	....
1828	225,846	513	$8,637	$329	....	....	....	....	....	....
1829	232,931	529	13,003	361	$8,499	$386	....	....	....	....
1830	202,968	461	12,500	349	5,477	247	....	....	....	....
1831	168,240	382	9,170	254	3,363	152	....	....	....	....
1832	327,302	743	12,259	340	5,356	243	....	....	....	....
1833	328,585	746	11,295	313	8,243	374	$24,666	$666	....	....
1834	429,659	976	12,181	338	8,832	401	25,639	692	$2,653	$331
1835	302,921	893	16,327	453	9,685	440	9,616	259	3,556	454
1836	310,183	704	51,637	1,434	29,898	1,358	9,665	261	4,739	592
1837	365,406	830	57,908	1,608	28,539	1,297	14,569	393	6,214	776
1838	374,713	851	49,360	1,371	18,994	861	13,394	364	4,454	556
1839	297,722	676	24,463	679	23,397	1,063	13,302	361	3,557	443
1840	364,292	827	34,796	915	24,740	1,124	12,401	335	4,501	562
1841	255,687	581	26,406	694	13,940	633	23,360	631	9,034	1,129
1842	322,354	732	31,427	827	15.829	719	34,524	933	8,113	1,014
1843	297,614	676	23,678	623	10,938	497	14,295	386	4,047	505
1844	371,449	844	28,598	752	14,442	656	12,703	344	3,951	493
1845	399,094	907	46,639	1,227	14,191	645	17,978	485	4,765	595
1846	371,185	843	53,546	1,409	12,325	560	14,264	385	5,309	663
1847	380,388	864	39,551	1,040	14,192	645	15,917	430	5,890	736
1848	503,953	1,145	72,783	2,021	13,009	591	27,232	736	8,518	1,064
1849	395,681	899	32,792	868	11,824	537	24,306	657	10,296	1,287
1850	478,887	1,085	31,805	837	10,831	492	33,230	852	5,620	905
1851	437,458	972	31.045	817	20,576	895	37,741	968	5,319	665
1852	558,329	1,232	42,728	1,124	27,606	1,200	32,620	636	7,751	969
1853	575,777	1,271	38,026	1,000	17,421	680	24,366	625	4,932	616
1854	677,270	1,543	86,529	2,277	17,025	680	30,653	786	5,132	641
1855	505,608	1,154	59,192	1,448	12,880	560	22,853	560	4,316	539
1856	454,865	1,031	59,854	1,574	9,364	448	17,209	441	3,647	456
1857	458,742	1,035	78,017	2,053	13,234	575	87,314	2,238	4,447	556

1858	435,916	973	107,698	2,834	21,769	946	105,605	3,862	9,803	1,125
1859	446,746	999	48,253	1,269	5,850	234	21,965	563	4,849	606
1860	229,008	526	15,639	412	3,492	159	12,431	319	4,598	575
1861	206,952	476	25,552	672	19,284	876	23,455	601	6,186	773
1862	240,650	533	31,191	725	19,059	657	27,024	692	7,557	933
1863	323,625	744	29,090	765	11,829	537	80,583	20,066	5,142	643
1864	519,505	1,194	27,414	721	14,973	681	29,141	747	23,697	2,962
1865	816,660	1,877	238,622	6,279	19,965	907	88,398	2,266	36,200	4,525
1866	665,168	1,529	59,634	1,569	16,427	746	49,304	1,265	7,110	889

Statement of Superintendents' expenditure—Continued.

YEARS.	CHENANGO CANAL.		GENESEE VALLEY CANAL.		ONEIDA LAKE CANAL.		BLACK RIVER CANAL.		ONEIDA RIVER IMPROVEMENT. B. V. CANAL.		Total miles.	Total cost of repairs.	Total average per mile.
	Cost of repairs.	Average per mile.	Cost of repairs.	Average per mile.	Cost of repairs.	Average per mile.	Cost of repairs.	Average per mile.	Cost of repairs.	Average per mile.			
1827	......	......	......	......	......	......	......	......	......	......	400	$232,473	$528
1828	......	......	......	......	......	......	......	......	......	......	478	234,433	490
1829	......	......	......	......	......	......	......	......	......	......	500	254,433	509
1830	......	......	......	......	......	......	......	......	......	......	500	221,005	442
1831	......	......	......	......	......	......	......	......	......	......	500	180,773	361
1832	......	......	......	......	......	......	......	......	......	......	500	344,917	690
1833	......	......	......	......	......	......	......	......	......	......	537	372,789	694
1834	......	......	......	......	......	......	......	......	......	......	545	478,964	879
1835	......	......	......	......	......	......	......	......	......	......	545	432,118	793
1836	......	......	......	......	......	......	......	......	......	......	545	406,122	745
1837	$19,509	$201	......	......	......	......	......	......	......	......	642	492,144	766
1838	10,809	214	......	......	......	......	......	......	......	......	642	481,774	750
1839	17,248	177	......	......	......	......	......	......	......	......	642	379,769	591
1840	15,427	159	$4,529	$125	......	......	......	......	......	......	694	460,686	664
1841	15,563	160	10,460	290	$3,370	$561	......	......	......	......	700	357,828	511
1842	18,955	195	17,749	341	3,608	601	......	......	......	......	700	452,559	646
1843	15,062	155	15,210	292	2,232	372	......	......	......	......	700	383,076	547
1844	15,959	164	15,556	299	1,636	272	......	......	......	......	700	464,329	663
1845	18,951	195	16,901	325	1,933	322	......	......	......	......	700	520,452	743
1846	18,452	190	17,399	334	17,875	2,979	......	......	......	......	700	510,355	729
1847	18,859	194	15,782	303	5,842	973	......	......	......	......	700	496,424	709
1848	20,901	215	26,577	510	1,855	309	......	......	......	......	700	674,777	964
1849	25,888	267	18,183	350	1,160	390	......	......	......	......	700	521,122	744
1850	27,189	280	18,575	357	4,892	815	$15,508	$398	$412	$21	762	626,950	823
1851	29,832	307	32,938	383	3,591	449	21,516	448	2,250	112	817	722,259	762
1852	36,730	375	79,587	904	6,360	1,060	30,731	667	2,084	104	887	824,533	929
1853	38,243	394	55,766	634	6,166	770	26,830	488	1,554	78	887	789,082	901
1854	49,187	507	48,093	546	10,440	1,740	28,548	570	3,255	162	887	960,265	1,082
1855	49,232	486	49,000	415	6,236	1,039	34,000	578	3,706	185	901	781,688	868
1856	13,903	143	34,271	381	2,589	432	17,204	441	2,482	124	901	616,014	684

1857............	27,826	265	60,650	514	3,119	519	15,179	155	3,591	179	909	752,575	828
1858............	44,114	455	80,911	686	4,104	586	18,622	190	2,797	140	917	878,721	958
1859............	26,067	269	46,490	394	3,975	568	24,926	255	1,079	54	917	630,615	688
1860............	26,934	278	38,518	304	4,059	676	22,287	237	....	....	866	356.966	412
1861............	22,593	233	28,450	224	3,242	540	23,402	249	1,070	89	878	360,187	410
1862............	29,086	209	64,711	584	2,475	353	23,629	241	450	22	924	342,817	371
1863............	31,897	828	49,984	393	2,375	395	20,455	217	....	....	924	555,052	601
1864............	40,846	421	166,227	1,309	2,543	424	21,646	230	632	53	....	846,624	943
1865............	100,450	1,036	231,902	1,826	2,365	394	48,488	515	499	42	....	1,584.648	1,765
1866............	81,132	837	93,803	738	524	88	46,911	500	12,810	1,068	898	1,032,824	1,151

TABLE

Exhibiting the date of the opening and the closing of the Hudson river, and the number of days open; also the time of commencement and close of each navigable season of canals, and the number of days of navigation since 1824; also the date of the opening of Lake Erie since 1827.

OPENING AND CLOSING OF THE HUDSON RIVER.			COMMENCEMENT AND CLOSE OF NAVIGATION OF ERIE CANAL.			Opening of the lake.
River open.	River closed.	Days open.	Canal open.	Canal closed.	Navigable days.	
March 3, 1824	January 5, 1824	309	April 30, 1824	December 4	219	
do 6, 1825	December 13, 1825	283	do 12, 1825	do 5	238	
February 25, 1826	do 13, 1826	302	do 20, 1826	do 18	243	
March 20, 1827	November 25, 1827	251	do 22, 1827	do 18	241	April 21, 1827
February 8, 1828	December 23, 1828	220	March 27, 1828	do 20	269	do 1, 1828
April 1, 1829	January 14, 1829	286	May 2, 1829	do 17	230	May 10, 1829
March 15, 1830	December 25, 1830	283	April 20, 1830	do 17	242	do 5, 1830
do 15, 1831	do 6, 1831	262	do 16, 1831	do 1	230	do 8, 1831
do 25, 1832	do 21, 1832	289	do 25, 1832	do 21	241	April 27, 1832
do 21, 1833	do 13, 1833	277	do 19, 1833	do 12	238	do 23, 1833
February 29, 1834	do 15, 1824	291	do 17, 1834	do 12	240	do 6, 1834
March 25, 1835	November 30, 1835	268	do 15, 1835	November 30	230	May 8, 1835
April 4, 1836	December 7, 1836	248	do 25, 1836	do 26	216	April 27, 1836
March 27, 1837	do 14, 1837	261	do 20, 1837	December 9	234	May 16, 1837
do 19, 1838	November 25, 1838	257	do 12, 1838	November 25	228	March 31, 1838
do 25, 1839	do 18, 1839	286	do 20, 1839	December 16	241	April 11, 1839
February 25, 1840	do 5, 1840	285	do 20, 1840	do 9	228	do 27, 1840
March 24, 1841	do 19, 1841	286	do 24, 1841	November 30	221	do 14, 1841
February 4, 1842	do 28, 1842	308	do 20, 1842	do 28	222	March 7, 1842
April 13, 1843	December 10, 1843	242	May 1, 1843	do 30	214	May 6, 1843
March 18, 1844	do 17, 1844	278	April 18, 1844	do 26	222	March 14, 1844
February 24, 1845	do 3, 1845	283	do 15, 1845	do 29	228	April 3, 1845
March 18, 1846	do 14, 1846	275	do 16, 1846	do 25	224	do 11, 1846
April 7, 1847	do 25, 1847	263	May 1, 1847	do 30	214	do 23, 1847
March 22, 1848	do 27, 1848	292	do 1, 1848	December 9	223	do 9, 1848
do 19, 1849	do 26, 1849	286	do 1, 1849	do 5	219	March 25, 1849

March	10, 1850	do	17, 1850	282	April	22, 1850	do	11	234	March	25, 1850
February	25, 1851	do	14, 1851	293	do	15, 1851	do	5	235	April	2, 1851
March	28, 1852	do	23, 1852	270	do	20, 1352	do	16	239	do	20, 1852
do	23, 1853	do	21, 1853	274	do	20, 1853	do	20	245	do	14, 1853
do	17, 1854	do	8, 1854	266	May	1, 1854	do	3	217	do	29, 1854
do	27, 1855	do	20, 1855	268	do	1, 1855	do	10	224	do	21, 1855
April	11, 1856	do	14, 1856	248	do	5, 1856	do	4	214	May	2, 1856
February	27, 1857	do	27, 1857	303	do	6, 1857	do	15	223	April	27, 1857
March	20, 1858	do	17, 1858	273	April	28, 1858	do	8	225	do	15, 1858
do	13, 1859	do	10, 1859	273	do	15, 1859	do	12	242	do	7, 1859
do	6, 1860	do	14, 1860	283	do	25, 1860	do	12	232	do	17, 1860
do	5, 1861	do	23, 1861	294	May	1, 1861	do	10	224	do	13, 1861
April	4, 1862	do	19, 1862	259	do	1, 1862	do	10	224	do	15, 1862
do	3, 1863	do	11, 1863	253	do	1, 1863	do	9	223	do	3, 1863
March	11, 1864	do	12, 1864	277	April	30, 1864	do	8	223	do	13, 1864
do	22, 1865	do	16, 1865	270	May	1, 1865	do	12	226	do	26, 1865
do	20, 1866	do	15, 1866	270	do	1, 1866	do	12	226	do	28, 1866

SCHEDULE

Of contracts let by Board of Canal Commissioners under acts, chaps. 327, *Laws of* 1854, *and* 554 *of* 1855, *showing the commencement of the several terms, the canal or section embraced in the contract, the duration of each term, and the annual compensation to the contractors.*

Commencement of term.	CANAL SECTION.	Duration of term.	Annual compensation.	Remarks.
October 1, 1854..	Section 8, Erie canal	5 years	$7,370	Expired October 1, 1859
March 1, 1855..	Section 1, Erie canal	do	43,000	March 4, 1860
October 1, 1855..	Section 1, Chenango canal	do	14,700	October 1, 1860
October 1, 1855..	Section 2, Chenango canal	do	6,000	October 1, 1860
October 1, 1855..	Oneida Lake canal	do	3,975	October 1, 1860
January 1, 1856..	Crooked Lake canal	do	4,473	October 1, 1860
January 1, 1856..	Section 1, Black River canal	do	3,999	January 1, 1861
January 1, 1856..	Section 2, Black River canal	do	9,985	January 1, 1861
April 15, 1858..	Addition to section 2, Black River canal chap. 185, Laws of 1858	....	2,000	January 1, 1861
February 1, 1856..	Section 2, Genesee Valley canal	5 years	13,900	Febru'y 1, 1861

STATEMENT

Of the number, class and tonnage of boats on the canals on the 1st of January, 1844; also the number, class and tonnage of boats built and registered in each year, subsequently to, and including 1862.

Tons.	Prior to Jan., 1844.		1844.		1845.		1846.		1847.		1818.		1849.		1850.		1851.		1852.	
	No	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
300																				
250																				
240																				
23																				
225																				
220																				
210																				
200																				
195																				
190																				
180																				
175																				
17																	1	170		
160																				
150															2	300			1	150
145																				
140																				
135																				
130													1	130			1	130	2	260
125																	1	125		
120													1	120			2	240		
115																				
110																				
105																				
100													2	200	13	1,303	27	2,700	34	3,460
95					4	95	1	95	6	570			4	380	6	570	33	2,185	63	5,985
90	2	180	1	90	1	360	6	540	27	2,430	10	900	4	360	25	2,250	72	6,480	90	8,100

STATEMENT—Continued.

Tons.	Prior to Jan. 1, 1864.		1844.		1845.		1846.		1847.		1848.		1849.		1850.		1851.		1852.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
85.........	1	85	.....	....	1	85	7	595	45	3,825	20	1,785	13	1,105	16	1,360	11	835	22	1,870
80.........	3	240	9	720	13	1,040	100	8,000	560	44,800	148	11,840	78	6,240	38	3,040	28	2,240	26	2,080
75.........	14	1,050	33	2,475	60	4,500	186	13,950	553	41,475	158	11,850	75	5,625	17	1,275	22	1,650	10	750
70.........	175	12,250	124	8,680	107	7,490	123	8,610	162	11,340	59	4,130	20	1,400	20	1,400	18	1,260	9	630
65.........	295	19,175	94	6,110	54	3,510	26	1,690	44	2,860	13	845	2	130	4	260	1	65	4	260
60.........	526	31,560	71	4,260	33	1,980	9	540	30	1,800	25	1,500	7	420	3	180	2	120	2	120
55.........	256	14,080	15	825	4	220	1	55	13	715	8	440	....	....	....	....	....	....	....	....
50.........	457	22,850	14	700	5	250	3	150	4	200	2	100	2	100	4	200	1	50	6	300
45.........	158	7,110	1	45	2	90	1	45	3	135	4	180	....	....	....	....	1	45	....	....
40.........	148	5,920	.....	....	.....	....	3	120	4	160	1	40	....	....	3	120	1	40	....	....
35.........	33	1,155	1	35	1	35	....	....	3	105	.....	....	....	....	....	....	1	35	....	....
30.........	34	1,020	11	330	1	30	2	60	3	90	6	180	4	120	....	....	....	....	....	....
25.........	10	250	3	75	.....	....	4	100	3	75	.....	....	....	....	....	....	....	....	....	....
20.........	8	160	.....	....	3	60	3	60	2	40	.....	....	2	40	....	....	....	....	....	....
15.........	3	45	1	15	.....	....	....	....	1	15	1	15	....	....	....	....	....	....	....	....
10.........	4	40	.....	....	1	10	2	20	2	30	1	10	....	....	....	....	....	....	2	20
5.........	.....	....	.....	....	4	20	....	....	.....	....	.....	....	....	....	1	5	....	....	....	....
2.........	.....	....	.....	....	3	6	....	....	.....	....	.....	....	....	....	....	....	....	....	....	....
Totals...	2,127	117,170	378	24,360	297	19,781	477	34,630	1,466	110,665	457	33,765	215	16,370	152	12,260	213	18,470	271	23,925

STATEMENT—Continued.

Tons.	1853.		1854.		1855.		1856.		1857.		1858.		1859		1860.		1861.		1862.		1863.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
300....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	300	....	....	....	....
280....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	560	....	....
250....	3	750	2	500	....	....	1	250	1	250	1	250	2	500	2	500	15	3,750	3	750	....	....
240....	1	740	....	....	1	240	2	480	....	....	....	....	....	....	....	....	5	1,200	1	240	....	....
230....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	460	2	460	3	690
225....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	12	2,700	28	6,300	2	450
220....	1	220	1	200	....	....	....	....	....	....	....	....	....	....	3	660	41	9,020	87	19,140	69	15,180
210....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	5	1,050	16	3,360	....	....
200....	5	1,000	3	600	4	800	....	....	3	600	3	600	4	800	33	6,600	169	33,800	298	59,600	254	50,800
195....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	195	2	390	....	....
190....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	16	3,040	6	1,140	25	4,750
180....	....	....	....	....	....	....	4	720	....	....	7	1,260	12	2,160	60	10,800	36	6,480	11	1,980	70	12,600
175....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	5	875	22	3,850	....	....
170....	....	....	1	170	....	....	....	....	....	....	15	2,250	7	1,190	17	2,890	3	510	....	....	8	1,360
160....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	160	4	610	9	1,440
150....	6	900	13	1,950	2	300	2	300	51	7,650	46	6,900	11	1,650	14	2,100	27	4,050	88	13,200	24	3,600
145....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	145	....	....	....	....
140....	....	....	....	....	....	....	4	560	15	2,100	5	700	1	140	2	280	19	2,660	13	1,820	14	1,960
135....	....	....	....	....	....	....	5	675	2	270	....	....	....	....	2	270	1	135	2	270	....	....
130....	7	910	9	1,170	43	5,590	22	2,860	16	2,080	4	520	2	260	2	260	3	390	4	520	16	2,080
125....	18	2,250	105	13,125	18	2,250	14	1,750	21	2,625	15	1,875	1	125	5	625	[illegible]	1,000	1	125	3	375
120....	16	1,920	143	17,160	125	15,000	118	14,160	84	10,080	13	1,560	9	1,080	22	2,640	15	1,800	12	1,440	15	1,800
118....	10	1,150	34	3,910	17	1,955	13	1,495	4	460	....	....	....	....	....	....	....	....	7	826	....	....
115....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	5	575	....	....	4	460	3	345
110....	16	1,760	87	9,570	13	1,430	10	1,100	6	660	3	330	1	110	4	440	5	550	5	550	5	550
105....	....	....	....	....	....	....	1	105	2	210	....	....	2	210	....	....	1	105	....	....	....	....
100....	79	7,900	83	8,300	28	2,800	28	2,800	8	800	25	2,500	14	1,400	55	5,500	67	6,700	194	19,400	61	6,100
95....	180	17,100	69	6,555	40	3,800	38	3,610	18	1,710	15	1,425	5	475	13	1,235	19	1,805	21	1,995	14	1,330
90....	164	14,760	95	8,550	58	5,220	69	6,210	43	3,870	16	1,440	36	3,240	42	3,780	41	3,690	51	4,590	102	9,180
85....	22	1,870	20	1,700	16	1,360	3	255	16	1,360	5	425	8	680	35	2,975	25	2,125	1	85	8	680
80....	33	2,640	44	3,520	28	2,240	6	480	15	1,200	22	1,760	25	2,000	49	3,920	43	3,440	4	240	18	1,440
75....	15	1,125	32	2,400	43	3,225	17	1,275	14	1,050	14	1,050	21	1,575	19	1,425	10	750	2	150	7	520
70....	6	420	10	700	23	1,610	4	280	3	210	7	490	16	1,120	4	280	5	350	1	70	10	700

STATEMENT—Continued.

Tons.	1853.		1854.		1855.		1856.		1857.		1858.		1859.		1860.		1861.		1862.		1863.	
	No.	Tons	N .	Tons.	No.	Tons.	No.	Tcns.	No.	Tons.	No.	Tons.	No	Tons.	No	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
65......	3	195	1	65	2	130	....	....	1	55	3	195	4	260	3	195	2	130	....	....	....	....
60......	2	120	2	120	4	240	....	....	3	180	18	1,080	8	480	2	120	6	360	....	....	6	360
55......	....	....	....	....	....	....	....	....	....	....	....	....	10	550	....	....	....	....	....	....	....	....
50......	3	150	1	50	3	150	1	50	....	....	7	350	1	50	2	100	2	100	2	100	5	250
45......	....	....	1	45	....	....	....	....	....	....	1	45	3	135	2	45	....	....	1	45	6	270
40......	....	....	1	40	....	....	1	40	1	40	3	125	....	....	1	40	1	40	....	....	....	....
35......	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	35	....	....	1	35	....	....
30......	....	....	....	....	....	....	....	....	1	30	....	....	....	....	....	....	....	....	1	30	9	270
25......	....	....	1	25	1	25	....	....	....	....	3	75	....	....	....	....	1	25	3	75	....	....
20......	....	....	....	....	1	20	1	20	....	....	....	....	....	....	2	40	1	20	1	20	4	80
15......	....	....	2	30	1	15	1	15	....	....	1	15	1	15	....	....	....	....	....	....	....	....
10......	....	....	....	....	....	....	1	10	1	10	1	10	1	10	2	20	....	....	....	....	....	....
5......	....	....	....	....	....	....	....	....	....	....	1	5	1	5	1	5	....	....	2	10	1	5
2......	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Totals	590	57,380	760	80,475	471	48,400	366	39,500	329	37,510	254	27,530	206	20,220	403	48,355	615	93,910	902	144,466	771	119,170

N. B.—An allowance must, of course, be made of such boats as have gone out of use.

Accurate accounts were made of the number of boats on the 1st of January, in the years 1847, 1853 and 1859, and resulted as follows:

January 1, 1847,	whole number of boats	....	2,275
January 1, 1853,	do do	....	3,401
January 1, 1859,	do do	....	3,867

STATEMENT

Of the number, class and tonnage of boats built and registered in 1864.

TONNAGE.	Steam.	D. bow.	Scows.	Decked scows.	Lake.	Bull heads.	Line.	Total boats.	Total tons.
300	......	......	......	......	......	......	......	......	....
280	......	......	......	......	......	......	......	......	....
250	......	......	......	......	......	......	......	......	....
240	......	......	1	......	......	......	......	1	240
230	......	......	......	1	2	......	......	3	690
225	......	......	4	1	6	......	......	11	2,475
220	......	......	5	1	21	3	......	30	6,600
200	1	......	25	7	55	10	......	98	19,600
190	......	......	......	......	......	3	......	3	570
180	......	......	4	......	3	......	......	7	1,260
170	......	......	......	......	......	......	......	......	....
160	......	......	1	......	1	......	......	2	320
150	......	......	8	4	10	2	......	24	3,600
140	......	......	1	3	11	......	......	15	2,100
130	......	......	.	1	2	......	......	3	390
125	......	......	......	3	1	1	......	5	625
120	......	......	1	2	3	......	......	6	720
115	......	......	1	1	2	......	......	4	460
110	......	......	......	2	......	......	......	2	220
100	......	......	1	23	10	4	......	38	3,800
95	......	......	1	29	3	5	......	38	3,610
90	......	......	4	32	8	22	......	66	5,940
85	......	......	......	1	2	1	......	4	340
80	......	......	1	11	5	2	......	19	1,520
75	......	......	......	1	......	......	......	1	75
70	1	......	......	6	......	......	......	7	490
60	1	......	3	......	2	......	......	6	360
50	......	......	......	1	......	......	......	1	50
45	1	......	......	1	1	......	......	3	135
30	......	......	......	......	......	......	......	......	....
25	1	......	......	......	......	......	......	1	25
20	1	......	......	......	......	......	......	1	20
5	......	......	......	......	......	......	......	......	....
	6	......	61	131	148	53	......	399	56,235

(No. 52.)

STATEMENT *of the number, class and tonnage of boats built and registered in* 1865.

TONNAGE.	Steam.	D. bow.	Scows.	Decked scows.	Lake.	Bull heads.	Line.	Total boats.	Total tons.
300	......	......	......	......	......	......	......	......	....
280	......	......	......	......	......	......	......	......	....
250	......	......	......	......	4	......	......	4	1,000
240	......	......	......	......	3	......	......	3	720
230	......	......	1	......	3	......	......	4	920
225	......	......	......	......	3	1	......	4	900
220	......	......	5	2	11	1	......	19	4,180
200	......	1	3	7	30	4	......	45	9,000
190	......	......	......	......	......	......	......	......	....
180	......	1	1	......	2	......	......	4	720
170	......	......	......	......	3	......	......	3	510
160	......	......	......	......	......	......	......	......	....
150	......	1	......	2	5	......	......	8	1,200
140	......	......	......	1	2	......	......	3	420
130	......	......	......	1	1	......	......	2	260
125	......	1	1	......	......	......	......	2	250
120	......	4	1	......	1	......	......	6	720
115	......	2	......	......	2	......	......	4	460
110	......	3	......	2	1	......	......	6	660
100	......	1	1	......	3	6	......	11	1,100
95	......	......	1	3	......	1	......	5	475
90	......	18	5	1	5	8	......	37	3,330
85	......	......	......	......	1	1	......	2	170
80	......	4	1	......	3	......	......	8	640
75	......	2	3	......	......	1	......	6	450
70	......	5	......	......	1	......	......	6	420
60	......	2	1	......	......	......	......	3	180
50	1	......	......	......	......	......	......	1	50
45	......	......	......	......	......	......	......	......	....
30	......	1	......	......	......	......	......	1	30
25	......	......	......	......	......	......	......	......	....
20	1	......	......	......	......	......	......	1	20
5	1	......	......	......	......	1	......	2	10
	3	46	24	19	84	24	......	200	28,795

RATES OF TOLL—1866.

Established by the Canal Board, on persons and property transported on the New York State canals, to take effect upon the opening of navigation in 1866.

Provisions, &c.

		cts.	m.	fr.
1.	On bacon, per 1000 pounds per mile	0	1	0
2.	On lard, lard oil, tallow and grease, per 1,000 pounds per mile	0	1	5
3.	On salted beef, salted pork, butter, cheese, bran and ship stuffs, oil meal and oil cakes, per 1,000 pounds per mile	0	2	0

Iron, Minerals, Ores, &c

4.	On mineral coal (anthracite and bituminous), coal oil, sand, brick and fire brick, soda ash, ice, limestone, clay, earth, marl, peat, manure, pig and smelted copper, iron ore and copper ore	0	1	0
5.	On bituminous coal carried to and delivered at tide water, per 1,000 pounds per mile	0	0	5
6.	On iron ore brought on the Champlain canal to West Troy or Albany, and cleared from one of those points to some place within the State, per 1,000 pounds per mile	0	0	5
7.	On bar and pig lead going toward tide water, per 1,000 pounds per mile	0	1	0
8.	On foreign salt and foreign gypsum, ground and unground, the products of other States. per 1,000 pounds per mile	0	2	5
9.	On bloom, scrap and pig iron, iron bolts, broken castings, pot and pearl ashes, calcined plaster or plaster of paris, fire-proof cement, bed plates for steam engines, plow casting and iron safes	0	2	0
10.	On leached ashes, charcoal and petroleum or earth oil, per 1,000 pounds per mile	0	0	5
11.	On stove pipe and furniture for stoves, not cast iron, and barytes, per 1,000 pounds per mile	0	3	0
12.	On salt manufactured in this State, gypsum, ground or unground, the product of this State, lime and water lime, per 1,000 pounds per mile	0	1	5
13.	On stoves and all other iron castings, except machines and the parts thereof, per 1,000 pounds per mile	0	3	0

Furs, Peltry, Skins, &c.

14.	On furs and skins of animals producing furs, per 1,000 pounds per mile	0	3	0
15.	On deer, buffalo and moose skins, per 1,000 pounds per mile	0	3	0
16.	On green hides of domestic animals of the United States, per 1,000 pounds per mile	0	3	0
17.	On imported raw hides of domestic and other animals, per 1,000 pounds per mile	0	3	0

Furniture, &c.

18.	On furniture, cabinet ware and chairs, per 1,000 pounds per mile	0	3	0
19.	On carts, sleighs, carriages, wagons, mattresses, mechanic's tools, looking glasses, willow ware and piano fortes per 1,000 pounds per mile	0	2	0

Stones, Slates, &c.

20.	1. On wrought stone, per 1,000 feet per mile	0	1	5
	On all stone unwrought or partly wrought, stone for the manufacture of lime and slate, per 1,000 pounds per mile	0	1	0

Lumber, Wood, &c.

☞ * Lumber shall not be cleared by measurement when carried in a boat having other articles on board paying toll by ***weight,*** but such lumber shall, in all such cases, be also cleared by weight.

When a cargo is composed entirely of lumber, which can be cleared by weight or measure, the whole of such cargo shall be cleared by measurement or by weight, as the shipper or master may elect, and in no case shall a portion of any such cargo be cleared by measurement, and the other portion by weight.

21.	On timber, square and round, per 100 cubic feet per mile, if carried in boats.	0	6	0
22.	On the same, if carried in rafts, per 100 cubic feet per mile	1	0	0
23.	On lumber, carried in boats, when weighed, per 1,000 per mile, viz:			
	1. On white pine, white wood, cherry, bass wood, cedar, boards, plank, scantling, railroad ties and all siding, lath and other sawed stuff, less			

		cts.	m.	fr.
	than one inch thick, carried in boats (except such as is enumerated in rates numbers 25 and 38	0	2	3
2.	On oak, hickory, beech, sycamore, black walnut, butternut, maple, ash, elm, fir, tamarack, yew and spruce	0	1	8
3.	On hemlock	0	1	0
	On lumber carried in boats, when not weighed, per 1,000 feet per mile, viz:			
4.	On boards, plank, scantling, railroad ties and sawed timber reduced to inch measure, and all siding, lath and other sawed stuff, less than one inch thick (except such as is enumerated in number 22), tolls computed on surface measure; and all kinds of red cedar, cedar posts, estimating that a cord, after deducting for openings, will contain 1,000 feet, per mile	0	6	5
5.	On hemlock, per 1,000 feet per mile	0	3	0
6.	On subs. 4 and 5, if transported in rafts, per 1,000 feet per mile	2	5	0
7.	On sawdust, and empty barrels and casks, per 1,000 pounds per mile	0	1	0
	On empty barrels and casks transported in rafts, per 1,000 pounds per mile	0	5	0
24.	On mahogany (except veneering), reduced to inch measure, per 1,000 feet per mile	0	5	6
25.	On sawed lath, of less than ten feet in length, split lath, hoop poles, rived hoops, hand pikes, rowing oars, broom handles, spokes, hubs, treenails, fellies, boat knees, ship knees, plain stocks, pickets for fences, and stuff manufactured or partly manufactured, for boxes, chairs or bedsteads, hop poles, brush handles, brush backs, looking-glass backs, gun stocks, plow beams, plow handles, per 1,000 pounds per mile	0	2	3
26.	On hop poles and hoop poles, transported in rafts, per 1,000 pounds per mile	0	5	0
27.	On ship knees, transported in rafts	0	5	0
28.	On rived hoops	0	2	3
29.	On staves and heading, shooks, stave butts and bolts not exceeding four and a half feet in length, transported in boats	0	1	5
30.	On the same, if transported in rafts, per 1,000 pounds per mile	0	5	0
31.	On shingles, if carried in boats, per 1,000 pounds per mile	0	1	5
32.	On shingles, in boats, per M. per mile	0	0	5
33.	On the same, if conveyed in rafts, per M. per mile	0	4	0
34.	On split and round posts (not exceeding eight feet in length), and rails for fences (not exceeding fourteen feet in length), per M. per mile, carried in boats	3	0	0
35.	On the same, if conveyed in rafts, per M. per mile	8	0	0
36.	On wood, for fuel, and tan bark, per cord per mile	0	5	0
37.	On the same, if transported in rafts, per cord per mile	2	0	0
38.	On wood used in the manufacture of salt, per cord per mile	0	5	0
39.	On sawed stuff for window blinds, not exceeding one fourth of an inch in thickness, and window sashes and blinds, per 1,000 pounds per mile	0	7	0
40.	On tan bark, ground, per 1,000 pounds per mile	0	2	5

Agricultural Products, &c.

		cts.	m.	fr.
41.	On clover seed, grass seed and dried fruit, per 1,000 pounds per mile	0	4	0
42.	On domestic distilled spirits, cider, vinegar and hops, per 1,000 lbs. per mile	0	2	0
43.	On wool, domestic cottons and domestic woolens, per 1,000 pounds per mile	0	2	0
44.	On cotton, per 1,000 pounds per mile	0	1	0
45.	On live cattle, sheep, hogs, bones (except for manure) and rags, per 1,000 pounds per mile	0	2	0
46.	On bones for manure	0	1	0
47.	On horses (except those used exclusively for towing boats or other floats), per 1,000 pounds per mile	0	3	0
48.	On horses used exclusively for towing boats or other floats, exempt from toll.			
49.	On hemp and tobacco, going toward tide water, per 1,000 pounds per mile	0	1	0
50.	On flax seed, apples and potatoes, per 1,000 pounds per mile	0	2	0
51.	On corn, corn meal and oats, per 1,000 pounds per mile	0	2	5
52.	On flour, wheat, barley, rye, peas, beans and junk, per 1,000 pounds per mile	0	3	0
53.	On onions, turnips, and all other esculent roots, pressed hay and pressed straw, per 1,000 pounds per mile	0	1	0
54.	On all other agricultural productions of the United States, not particularly specified, per 1,000 pounds per mile	0	3	0
55.	On tobacco, going from tide water, per 1,000 pounds per mile	0	1	5

Merchandise.

		cts.	m.	fr.
56.	On sugar, molasses, coffee, iron in bars, bundles and sheets, steel, boiler iron, nails and spikes, horse shoes, bridge iron and railings, gas and water pipes, railroad chairs, crockery and glass ware, flint and enamel ware, tar, turpentine, leather, per 1,000 pounds per mile	0	1	5
57.	On merchandise enumerated and non-enumerated	0	1	5
58.	On railroad iron, per 1,000 pounds per mile	0	2	0

59. On agricultural implements, sulphuric acid, carboys, car axles, car wheels and varnish	0	2	0
60. On powder, gunpowder, demijohns, trees and shrubbery, per 1,000 pounds per mile	0	4	0

Articles not enumerated.

61. On all articles not enumerated or excepted, going toward tide water, per 1.000 pounds per mile	0	3	0
62. On the same, going from tide water	0	1	5

Boats and Passengers.

63. On boats *used chiefly* for the transportation of passengers, upon *all canals*, per mile	4	0	0
On the same, if they elect to commute for tolls upon passengers	3	0	0
64. On boats *used chiefly* for the transportation of property, per mile	2	0	0
On the same, if they elect to commute for tolls upon passengers	2	3	0
65. On boats registered before July 1st, 1862, whose bows do not conform to regulation No. 40, per mile	3	0	0
66. On all persons over ten years of age, per mile	0	0	5

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